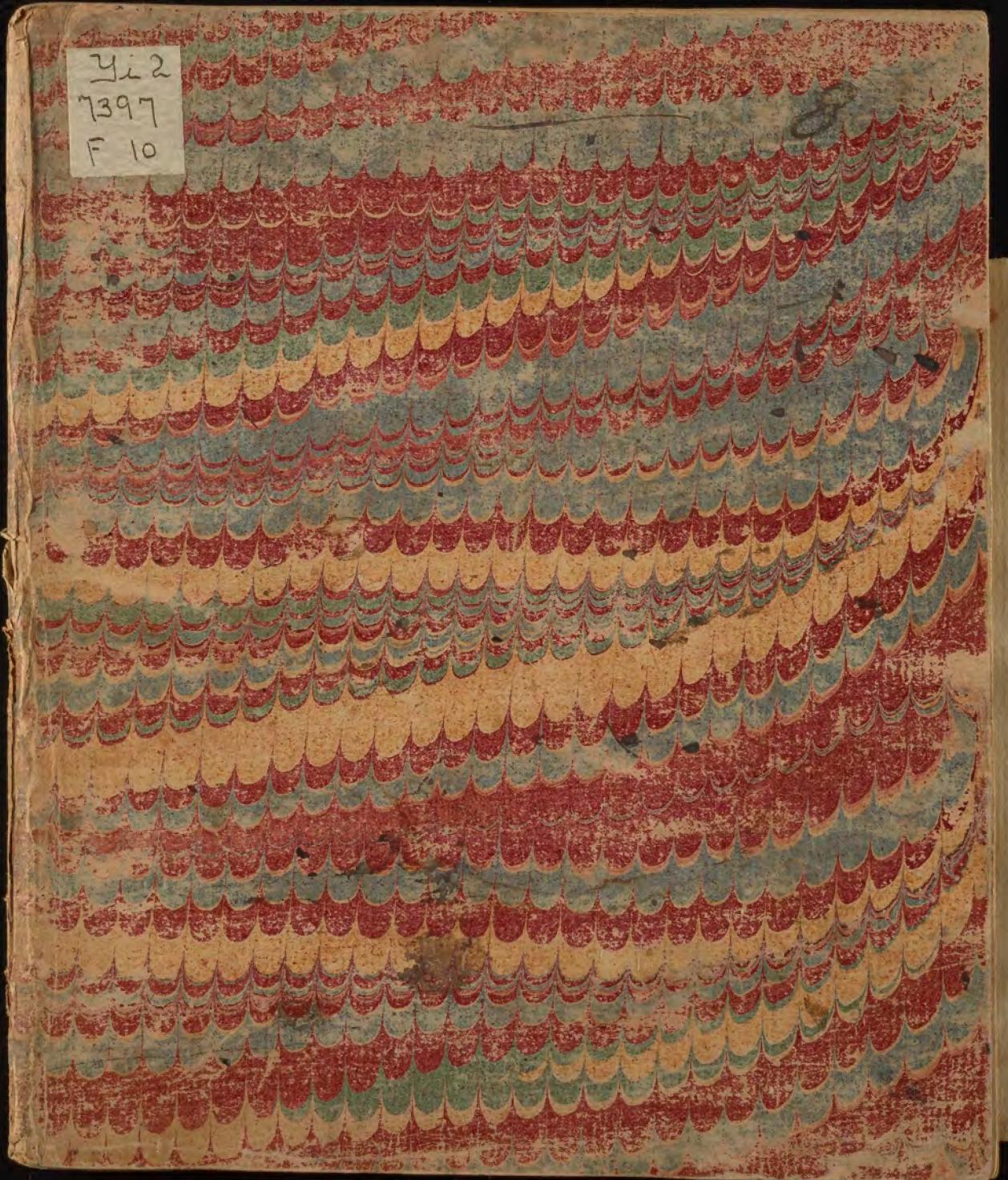
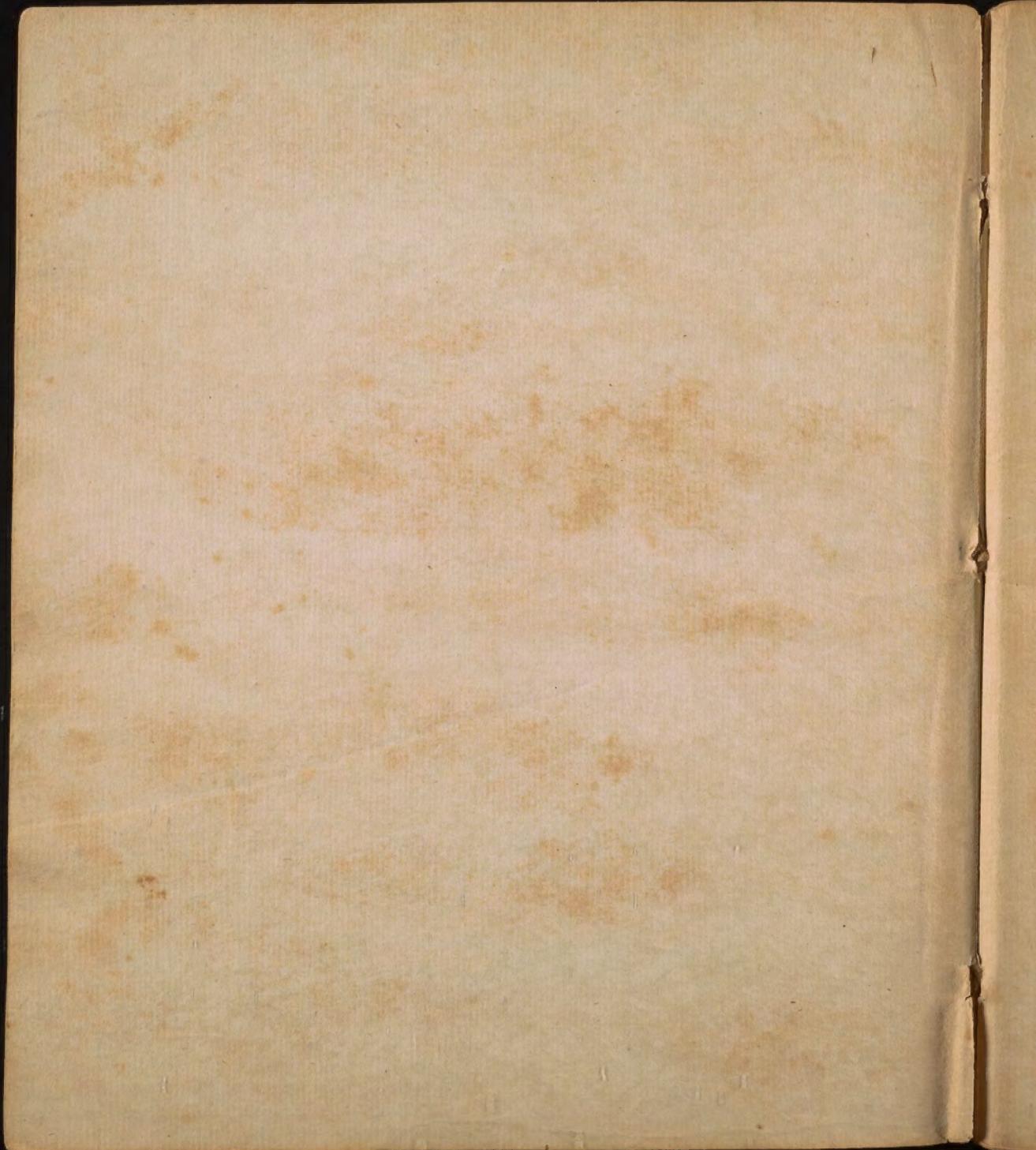


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Touch cont'd. -

Taste 331.

Smelling 340

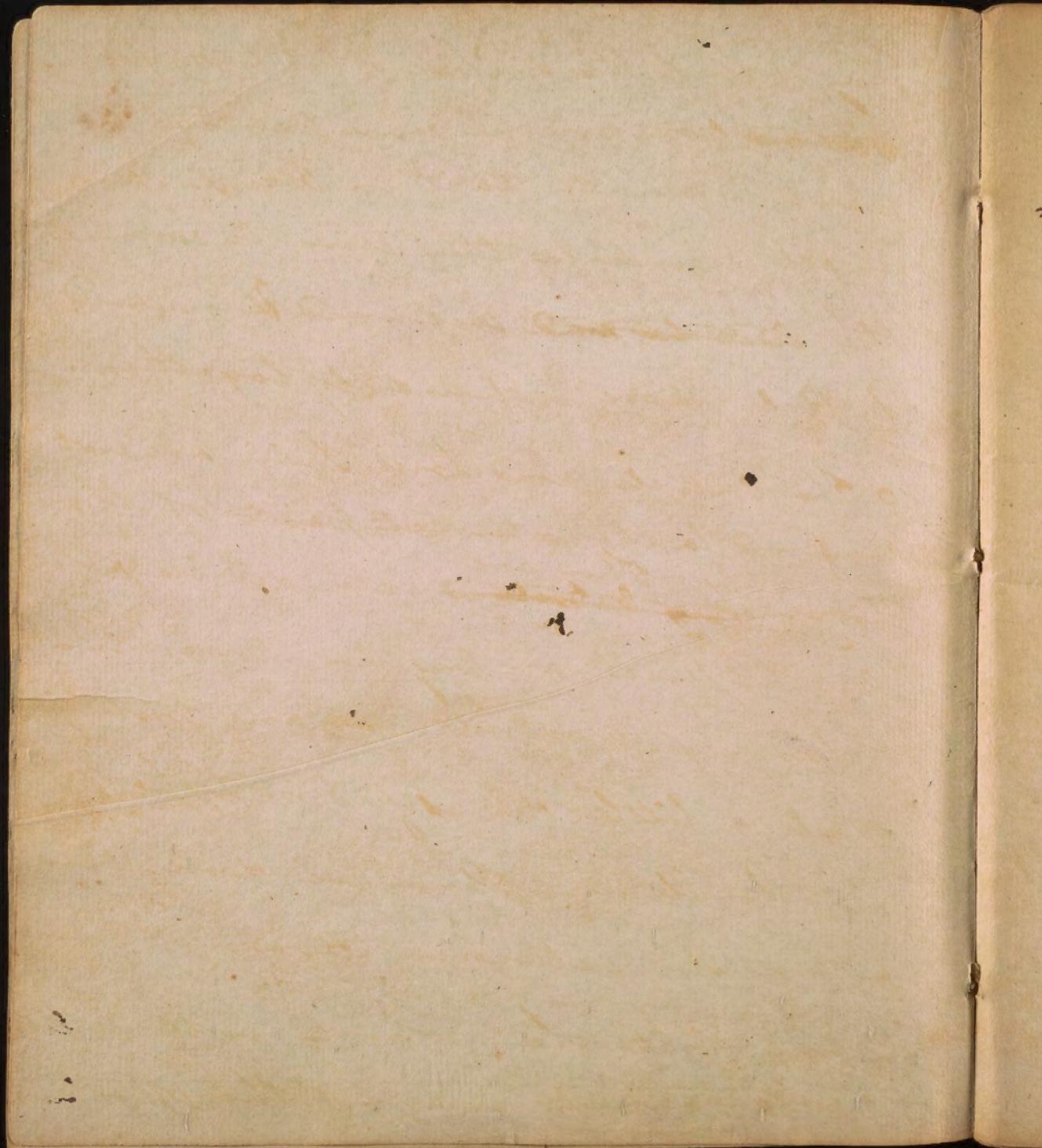
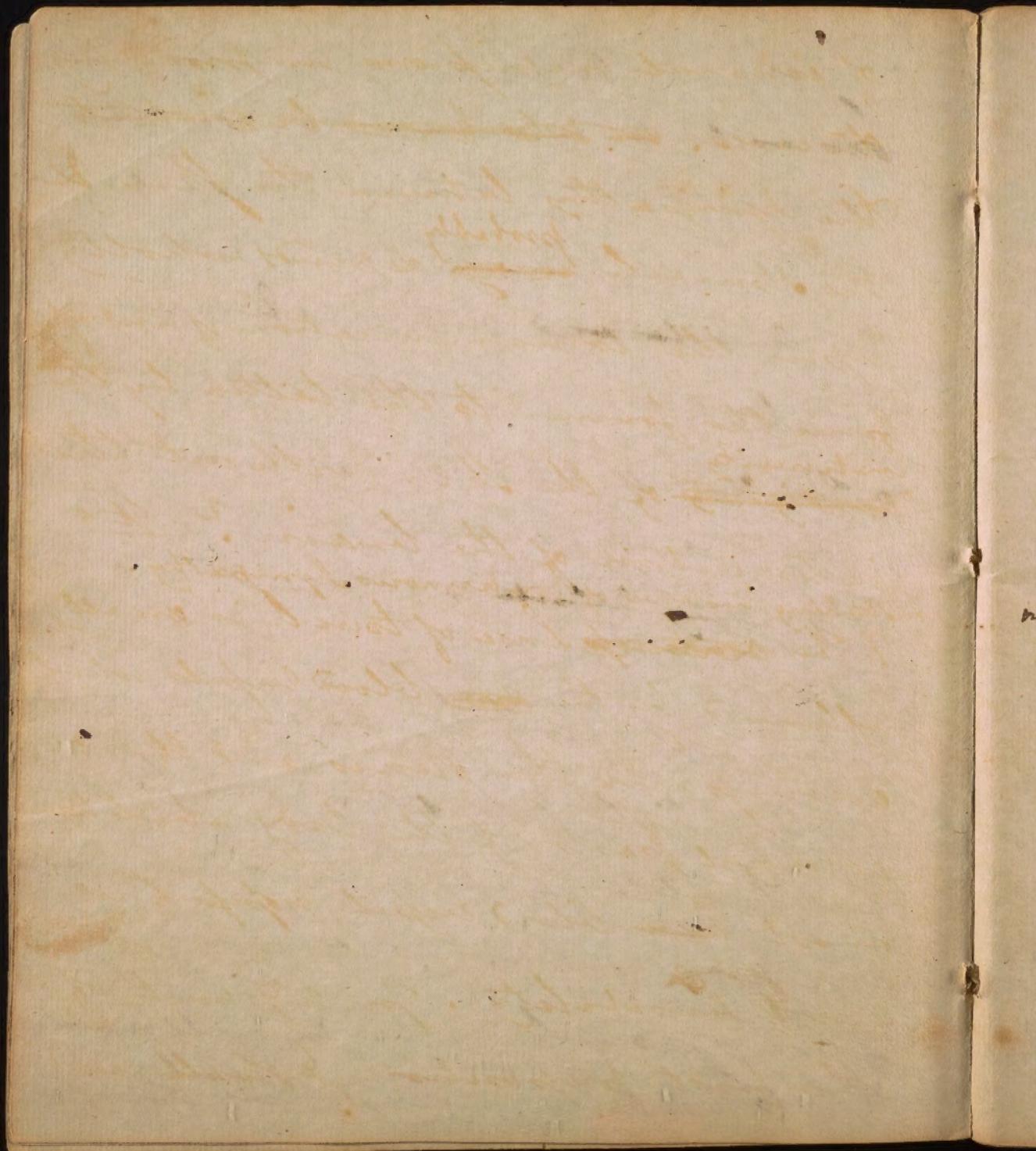


Fig. Hairs

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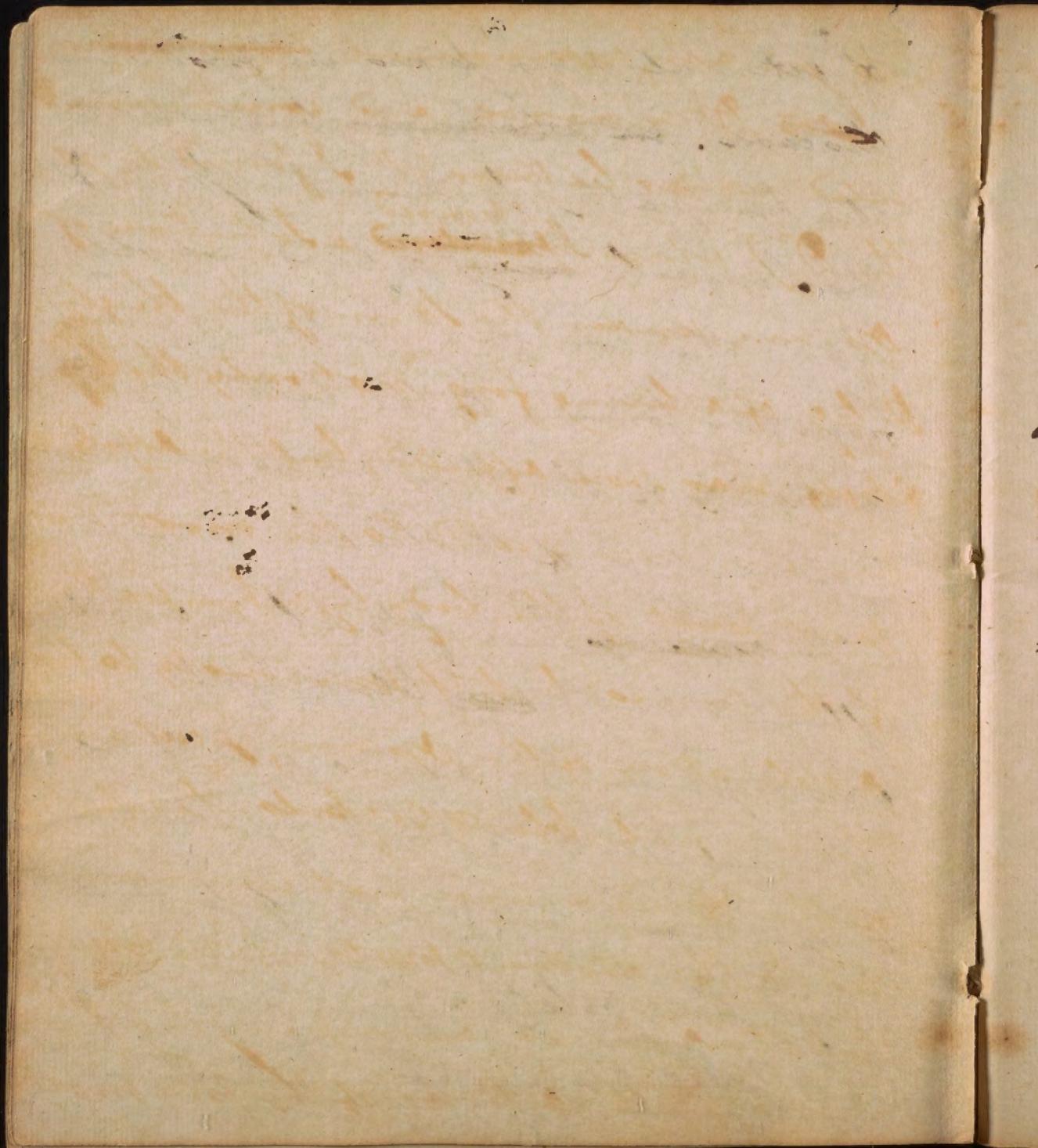
They defend the surface of the body from ~~injury~~ ³¹⁶ attrition in some parts, - im-
part warmth to it in others, - and
in all, - perhaps they come to connect
the ~~exterior~~ outward & inward
article more intimately together.

6 The article and true skin are not
confined to the external parts of the
body. ^{They are} ~~They are~~ extended into the
arms - urethra - vagina - mouth -
pharynx - nostrils - ~~and~~ and probably
exists a little diversified in the stomach
and bowels. — Hence we derive ever
and more extensive views of the
sense of touch, which will enable
us to explain many of the operations



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of external impressions in producing
diseases. ~~we do know but what~~
the sympathy between the skin &
the stomach ^{probably} depends wholly
upon the communication of impression
from the former to the latter by the
continuity ~~continuity~~ of the skin, without the
intervention of the brain? It is
a striking instance of continuous sympathy.
The ~~external~~ sense of touch is greatly
influenced by the ~~the~~ blood vessels which
accompany the nerves, and those
external parts of the body which have
most ~~the~~ blood vessels, ^{perhaps} the
most sensibility. In support of
the first proposition I shall read



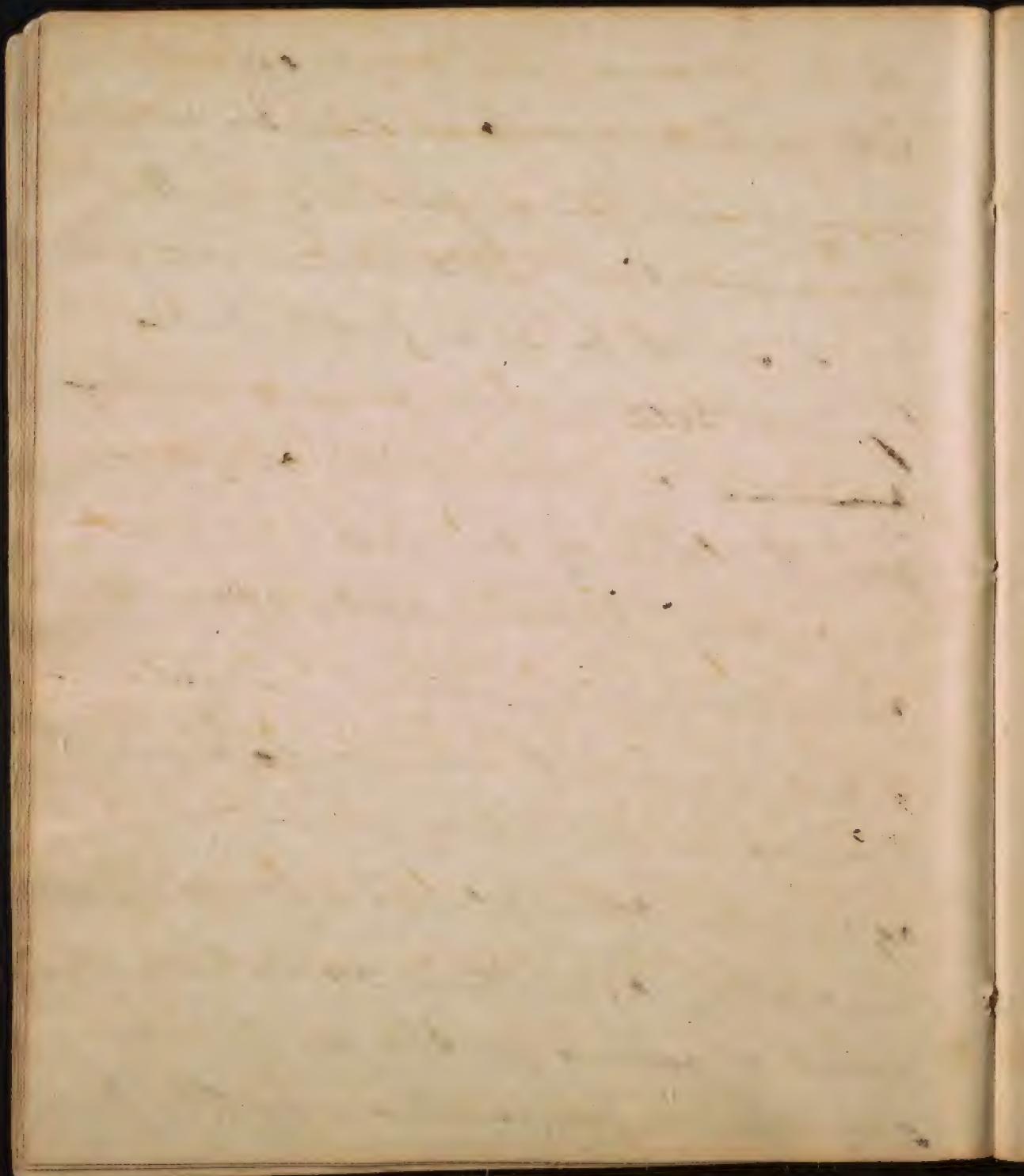
318

Act of an ³¹⁸ made by
to you an ³¹⁸ experiment ~~made by~~
Dr Monroe, and communi-
cated in his lectures. "I found (says
the Dr) when ~~the~~ ^{bound} a solution of
Opium under the skin of the thigh
& leg of a living frog, not only the leg
itself was soon affected, but the affection
was communicated to the most dis-
tant part of the body by a sympathy
of the nerves; but if previously to the
application of the Opium, I cut across
the femoral blood vessels, the effects
of the Opium were not communica-
ted to the distant parts, which proves
that the arteries accompanying the
nerves, or the arteries of the pia mater

This image shows a single page of aged, yellowish-brown paper with dense, illegible handwritten text. The text is arranged in approximately 15 horizontal lines. The ink is faded and the paper shows signs of wear, including numerous small dark spots (foxing) and a prominent dark horizontal mark near the top edge.

314

of the nerves, have a great effect in
fitting the nerves to receive, & com-
municate impressions". — But
this proposition will receive still great-
er support from a fact mentioned
by Mr Bell in his history in his
~~second~~ account of the operation
for the cure of Anæsthesia. His
words are "Immediately after the
operation, the patient complains
of an unusual numbness, & want
of feeling in the whole member" and
again in other place, he says "Im-
mediately after this operation, the
want of feeling in the part is very
great, & in proportion as the



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circulation in the other part becomes
more considerable, the degree of feeling also
augments. — If we could suppose the
nerves of the parts below to be always
included in the ligature with the artery,
the numbness which attends immme-
diately to the operation might easily
be accounted for, but I have known
it happen, when I was certain that
nothing but the artery was severed by
the ligature; and besides, altho' the
knot upon the nerves would account
for the immediate loss of sensibility
which follows the operation, it w^o
not in any degree serve to explain
the return of feeling on the circulation

✓ To this I answer that the blood
refuses are by no means formed destitute
of blood in persons who have ~~ever~~ ^{ever} died
offensive, but admitting this to be
the case, may ✓ turn over to left hand
page.

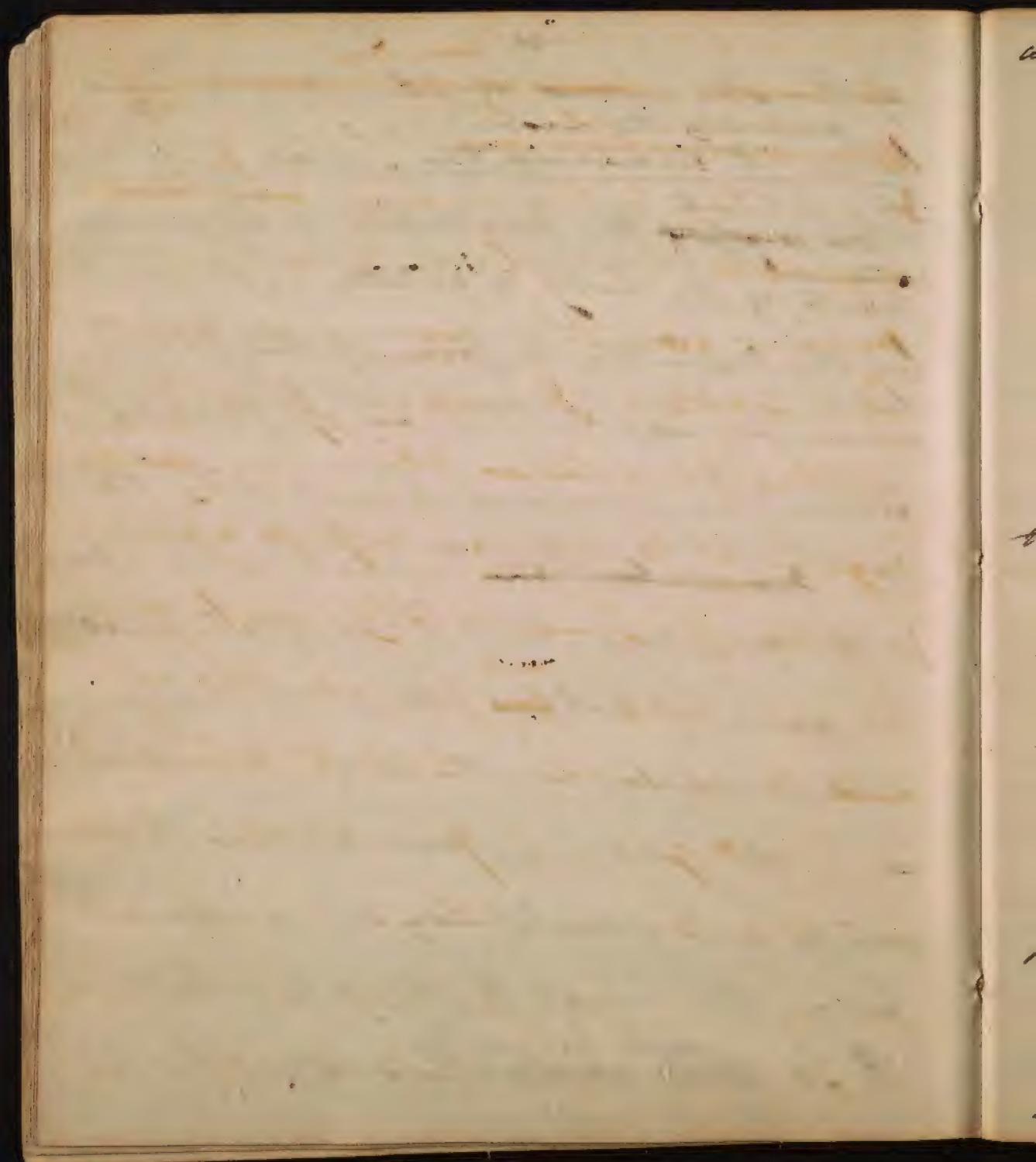
being again restored." To these striking facts I might add, that insensation in the skin is always proportional to the greater or less fulness ~~or~~ or tension of the blood vessels which terminate in the surface of the body. ~~This is that~~
~~more particularly in~~ ~~the~~ ~~patho-~~
~~logy of the Hypochondriacal Disease~~. There
~~is only~~ ^{one} seeming exception to this
 remark & that is the sense of touch
~~is increased~~ ^{by} ~~fasting~~, ~~but~~ ~~in~~
~~which case there is said to be the quantity or~~
~~the amount of the diminution of~~
~~the stimulus of~~
~~blood.~~ ~~It~~ ~~is~~ ~~right~~ ~~to~~ ~~suppose~~ ~~on~~
~~this~~ ~~theory~~ ~~the~~ ~~insensation~~
~~is~~ ~~supposed~~ ~~to be~~
~~caused~~ ~~from~~ ~~the~~ ~~diminution~~

— may there not be such
V. ~~the~~ an accumulation of
Excitability in the extremities of the nerves
induced by the abstraction of the stimulus
of Aliment ² ~~the~~ and blood as to render
them more easily moved by other stimuli
— li? —

of the Stimulus of Aliment, and
 probably the reason why
time it overcomes the sense of touch.

That the sensibility of different
 external parts of the body is greatly influenced
 by the quantity or force of the blood
 which
 accompanies the nerves, I prove
 from the peculiar sensibility of
 the ~~greatest~~ ^{the} breasts of females,
 & the genitals - and lips of both sexes
 in each of which there is a profusion
 of blood vessels. In the lips - the ^{color of the} blood
 is visible, - and every one knows how
 easily and plentifully it is effused
 from the most trifling wounds. -

8. It ^{I find formerly} appears ~~so~~ ^{so} often that



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a different set of nerves, ~~are employed to convey the~~ ~~the same sensations from the~~ sensations of taste, smell & ~~of generation~~ perhaps of light & hearing to the brain, ~~so that they~~ ~~diffuse~~ those which serve the same organs for the common purpose of sensation. I suspect something of this kind takes place in ~~the~~ ^{such as} the organs of touch as regards a peculiar or specific sensibility, such as the fingers - lips - ^{and} ~~the~~ female breasts. - It is certain that it takes place in the organs of generation. Dr. H. Winter mentions a remarkable proof. He tells us that he knew a gentleman who had the glans

✓ I shall hereafter mention several
other instances of the translation of
specific sensations.

Penis completely destroyed by a mortification almost as high as the Union of the Penis with the Probris; & at the edge of the dead skin, at the root of the penis where the nerves terminated, was the peculiar sensation of the glans penis, and the sensation of the glans itself, was now only common sensation; therefore the glans has different nerves, and those for common sensation may come thro' the body of the penis to the glans".

so much qmt. for the structure of the organs of touch in general,

V and by the male ~~ossicles~~ ^{fibres} which
~~are~~ are formed in ~~radiated~~ ^{concentric} layers
upon the extremities of the fingers.
An inequality of surface is thus given to
them, which increases their visibility.

Howard

5: 50: To increase the sense of touch to the highest degree, it is wisely distributed this ^{at thumb & joint} ~~four~~ fingers on each hand, & the perceptions are most acute when the whole of them are employed in inspection. This ^{I shall mention} mentioned as a reason for using four fingers when practicable in feeling the pulse.

demonstrated. Even Dr. Haller who
~~opposes~~ mentions them very confidently
 [in his 423 ^{of his first lines} & seems to infer their
 existence only from the analogy of
 the tongue where they have been
 seen, and where we shall say hereafter
 they are necessary to the ~~sense~~ ^{sense of taste}.
 Malpighi is the only Anatomist who
 pretends to have seen the papille in the ends
 of the fingers. - ✓
 By

W: That the sense of touch should be correct
 and perfect, it is necessary that the brain
 should be free from ~~distress~~ compression,
 and that no there should be no obstruction
 on the nerves which connect the brain with
 the fingers, - that the circulation of the

which
is that the impression of the body touches
should not be too violent, or too
gentle - & that it should be continued
for some time - and

W to common impressions. Mrs D' Hallion
relates an instance of a man who could walk
bare-footed, on hot iron.
Next to the fingers, the lips possess
a high sense of touch. This is obvious
in children who always put the things they
handle to their ~~lips~~ ^{lips in order} to assist them in
knowing of their properties. This sense
of touch in the lips is lost by disuse from
our employing our fingers, exclusively in
after life. =

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blood to the fingers should be ~~very~~³²⁷ plentiful,
that the temperature of the fingers should
neither be ~~too~~ hot, or cold beyond a cer-
tain degree. ~~that~~[#] that the extremities of the
fingers should neither be denudated nor
covered with too thick a skin. The latter
tends very much to deprive the sense of
touch, as we see every day in leprosy,
more especially in Smiths who often burn
~~the~~ ~~hands~~ ~~and~~ ~~thereby~~ ~~render~~ ~~callous~~ ~~the~~ ~~extremities~~ ~~of~~ ~~their~~ ~~fingers~~. ~~the~~ ~~feet~~ ~~from~~ ~~use~~ ~~sometimes~~ ~~become~~ ~~very~~ ~~callous~~ ~~or~~ ~~dead~~ ~~to~~ ~~feel~~ ~~the~~ ~~heat~~ ~~or~~ ~~cold~~ ~~or~~ ~~the~~ ~~pain~~ ~~or~~ ~~the~~ ~~sharpness~~ ~~of~~ ~~the~~ ~~edges~~ ~~of~~ ~~the~~ ~~tools~~
I mentioned formerly the effects of
habit on the sense of touch in common
with the other senses. — It acquires in
this way, and more especially if it be
deprived of the aid of other senses, an acu-
tacy that goes almost beyond conception.

Wm de Cat ~~said~~^{relates} the history of a
man who could distinguish every card
in a pack by the sense of touch.

Mr Boyle relates a story of a ^{blind} Organist
who could distinguish colors & even
black letters by his fingers. He always
succeeded best after fasting a while, &
when the weather was not very dry.

The readiness and certainty with which
Physicians distinguish the different
States of the Pulse, ^{by means of their fingers} is the effect of habit,
~~and can neither be irritated, nor
compromised by persons who are
not accustomed to it.~~ — To render the
sense of touch as acute as possible in
all cases, it is necessary that the brain
should be preserved free from ~~function~~
the effects of impressions upon all the
other senses. — It will therefore be

Its correctness is very much increased by 1 putting
the hands in warm water - 2 by perceiving by rubbing ⁱⁿ
over a rough body. It acts by exciting ~~possibility~~ the extensibility
of the nerves. 3 by motion. ~~But also by the heat of cold water~~
The accuracy of the sense of touch in
distinguishing numbers is acquired by
habit. Thus we know from experience
that a marble when felt in the hand
by two fingers - is single - but if we
cross the fingers - thas - we have a
false perception of two marbles.

If we ~~can~~ ^{not} learn the thickness of bodies
by it without the assistance of our eyes,
but not the comparative thickness of one
body more than another. This fact is taken
notice by ~~ourselves~~ in the Med. Repository. But
may not this be owing to a difference in
the vibrations of the bodies felt, & may not
the ears assist ~~in~~ hearing these vibra-
tions? ~~X~~ Then the mind originates ⁱⁿ or

most acute in darkness & in silence.

To the sense of touch we are indebted for all our ideas of the primary qualities of bodies. From ^{the sense of touch} being so early associated with the sense of seeing, we are apt to ascribe to the use of our eyes certain ^{parts of knowledge} which we acquire only by the sense of touch - such as our ideas of extension - figure - motion - ~~and~~ hardness - softness - ~~degrees of heat and cold~~ The eyes ~~know~~ nothing ^{of the properties of} ~~but~~ ^{Touch} the objects without the sense of ~~touch~~ - and were it possible for the sense of touch to be abolished immediately after birth, we should never be able to distinguish as hardness from softness - nor ~~any~~ ^{other} matter which were rough from that which were smooth.

its faults are first excited, by the impressions
on the sense of touch. They begin ~~in~~ in
the womb, from the meconium, and
from external pressure. Abortions are often
produced by them. It is in consequence
of its being the most early sense in its
^{beginning on the 4th month} operations & that it is the most perfect of
any of them. The other ^{or till delivery} senses do not
open till the 9th month & sometimes not
till after it. The sense of touch is the
sense of distinct. It begins in ^{the} fetus.
The ^{superiority} ^{over} ~~other~~ ^{those of}
~~perpetuity~~ of this sense is evinced by
the conduct of the apostle Thomas, who
did not believe in the ^{divinity of} ~~resurrection~~ of his
body after his resurrection ^{seen} ~~seen~~
him although he both ^{had} ~~had~~ & conversed
with him until he ^{be} ~~be~~ satisfied ^{of} ~~of~~
~~his~~ ^{reality} by thrusting his hand into
his side.

Return to 329 ¹¹

330 ~~Henry Chauncy~~

Even the blushing rose, would not be
distinguished ~~from~~ a flame of fire, ~~but~~
without the sense of touch. ~~now~~ This
Observation occurred with great force to
Mr Molinanus the friend of Maloche,
and it ~~was~~ ~~supposed~~ ~~expended~~ to the
following Question was proposed to by
him in consequence of it, to that great
metaphysician: Suppose said to Mr
Molinanus that a boy born blind should
be taught by means of his fingers to
distinguish accurately between a cube
& a ^{Ball} made of the same kind of
metal - and of the same weight, - and
suppose this should afterwards suddenly
receive his sight - and the cubes and
~~round~~ ^{boy} ~~round~~ pieces of metals ^{should} be played before

his eyes. Do you suppose he would be able
to tell which was the cube, and which
was the ball." Mr. Locke acknowledged
himself unable to answer this question -
You will certainly therefore excuse my attempting
it.

The starting of the horse is owing
probably to nothing but his ignorance
of the properties of bodies from the want
of the sense of touch. The timidity, or
folly of many other animals may
be traced to the same cause. In short
the superiority of man ~~is it alleged~~
~~and asserted~~ over the brute creation, is derived in many
particulars from his possessing ^{to} exclusively
the sense of touch. To this he owes his
knowledge of not only of most of the mechanical
arts, but ~~it is his~~ his ability to direct the
pen and the type in the more important
~~employment~~ of writing & printing. Helvelius ^{reckons} considers
it as a more distinguishing ^{mark} of man than reason or speech. I

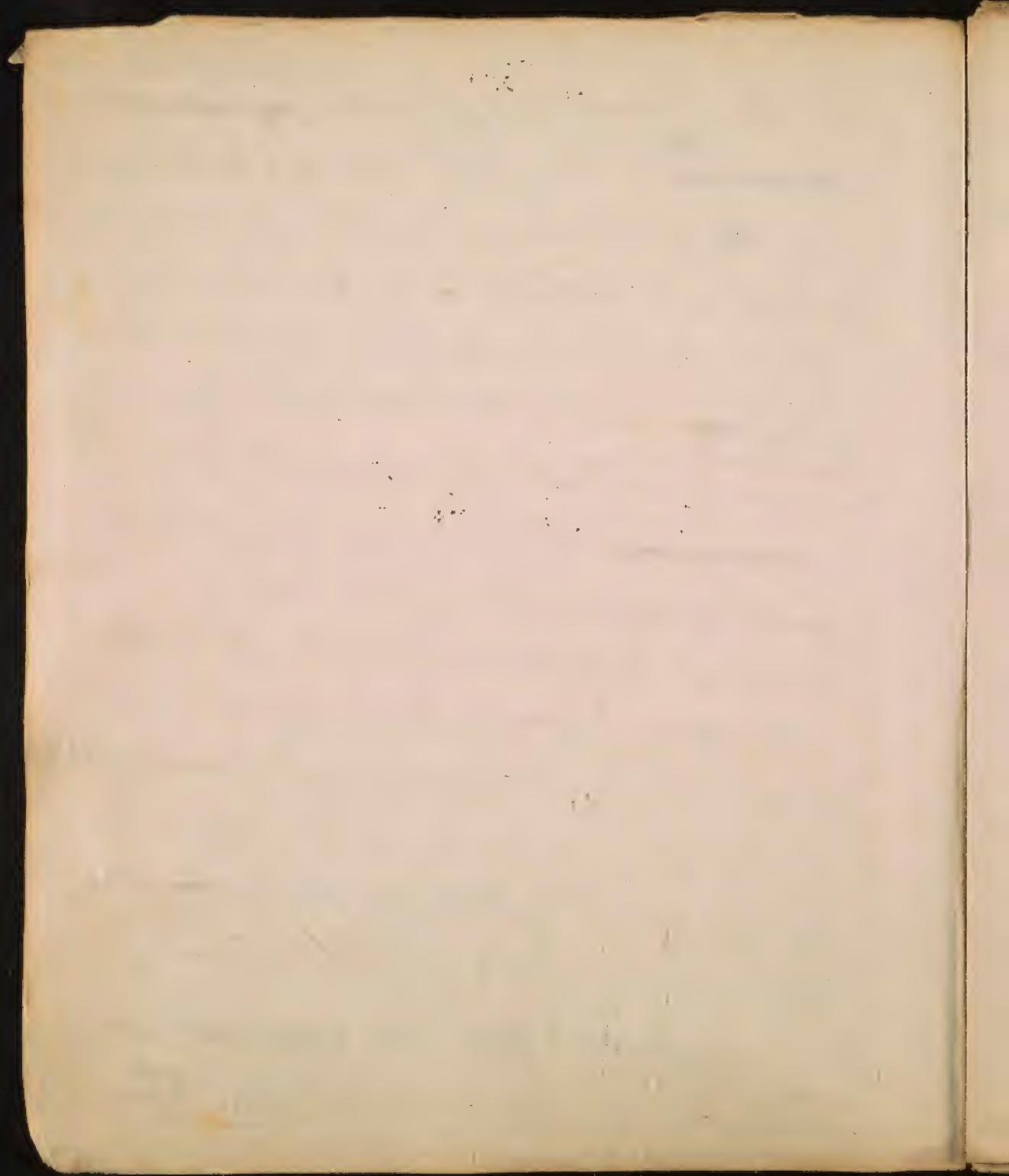
12332

I have said that all our knowledge is
acquired thro' the medium of the senses.
- This being the case, it follows that the
more acute, and extensive we render the
senses in their capacity of receiving im-
pressions the more we shall be able to
increase our knowledge. For this pur-
pose certain means have been
which I shall mention ^{in order} ~~successively~~ after
considering each of the senses. The sense
of touch has been improved 1 by dis-
covering persons by feeling their faces & hands
or the hair of their heads. 2 by distinguishing
couns ^{or} 3 by finding out what is written in
the palm of the hand with a finger, or a
pencil. 4 by distinguishing the difference

V 12 by distinguishing the frequency of
certain motions - particularly the
pulse in a given time .

and trying it by
in the temperature of water ~~and~~
passing ~~it~~ a Thermometer. 5 by distinguish-
ing ~~it~~ substances of similar forms, but
of different weights. 6 By distinguishing
different kinds of wood, and cloath.
7 By ~~it~~ finding out the number of
leaves and ^{and} pages in a book, by feeling its size. 8
by ^{distinguishing} ~~it~~ blank, - written, and printed
pieces of paper from each other. 9 By
distinguishing the different lengths of sticks
of the same diameter, & nearly of the same
length. 10 by distinguishing different kinds
of earths and fruits when placed in
the hand. 11 By distinguishing ^{the} the
difference in Coins by their inscriptions.

Just before we exercise our
fingers in any or in all the



ways that have been mentioned, the following means ~~are~~ will be found useful in imparting sensibility to the fingers.

- 1 ~~Holding~~ the hands for a few minutes in warm water.
- 2 Rubbing the fingers over a rough substance of any kind. This acts by exciting the extremities of the nerves.

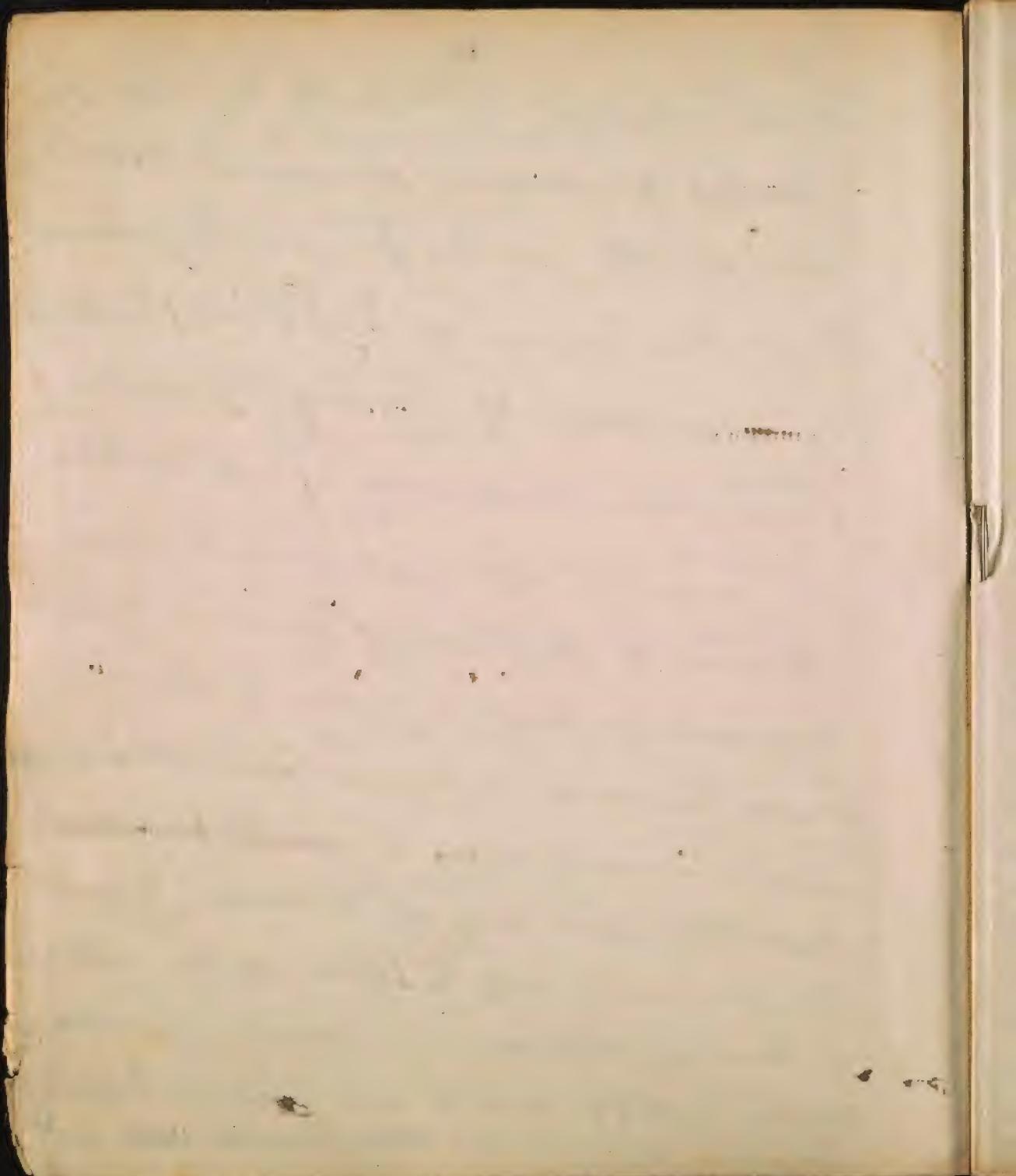
~~3 by~~ ~~shaking~~
The sense of touch is further very much increased by moving the fingers backwards and forward upon the body we wish to examine. also by moving the fingers for a while, in order to favour the accumulation of

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in the ways that
only to be acquired ~~only by practice~~
have been mentioned, that cannot
fail of adding very much to the
safety and pleasure with which the
different branches of medicine may
be practised, but to the reputation
& interest of the profession. That it
is possible to add to the number of
lesions ~~to~~ in the fingers. I
infer ~~not~~ not only from its being
often attained, but from its being
so often induced by diseases. -

sensorial power & lastly by concenterating as much sensorial power as possible in the fingers by closing up the lenses of sight by shutting the eyes and of hearing by avoiding conversation and noise of all kinds.

To many different artists this extension of the sense of touch is of great consequence, but to none of them more than to the physician, the surgeon and midwife. A ~~great~~ ~~great~~ knowledge not only of the pulse, but of the temperature of the skin - of the nature of tumors external & internal - of extraneous matters which are removed beyond the evidence of all the other senses, ~~one~~ is

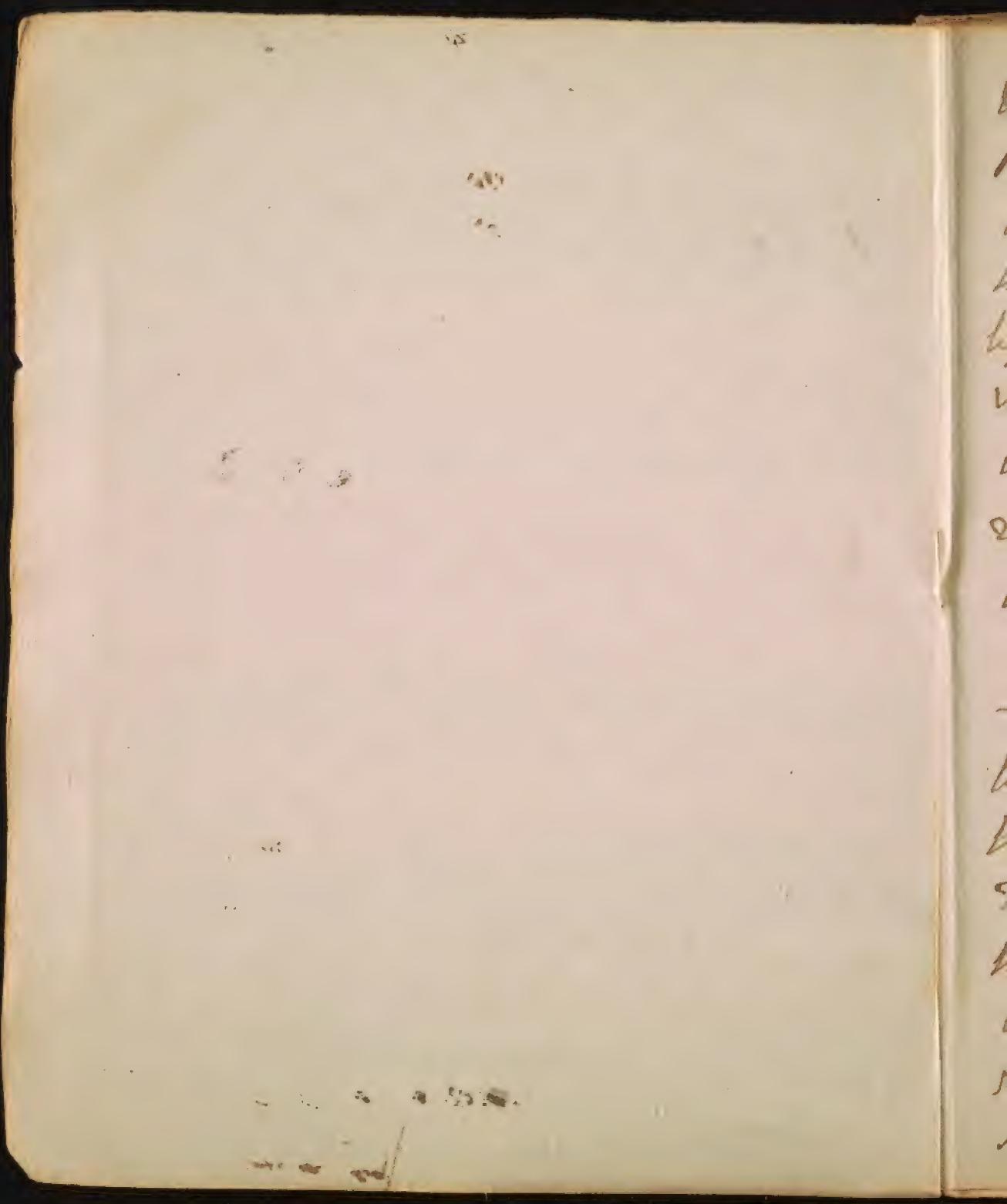


of Taste

This sense is seated only in the tongue,
by which I understand that body which
is placed in the mouth, and which is
capable of the greatest variety of motion

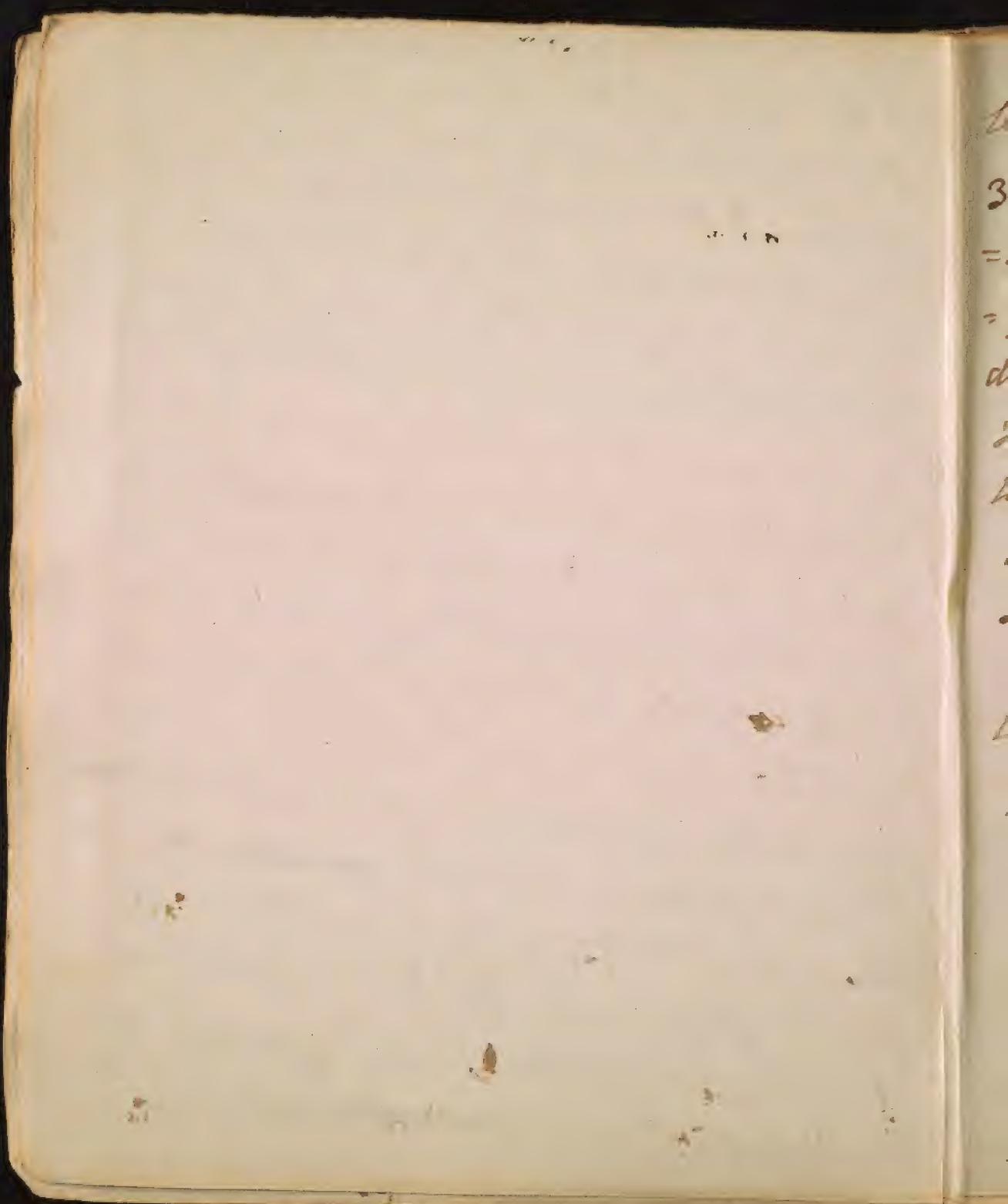
— ours. The following peculiarities relative
to this sense, deserve our notice.

1 The tongue abounds with blood vessels,
nerves & muscles & lymphatics. It has an
artery and vein and four muscles on
each side of it, from which some anato-
mists have drawn an imaginary line
thru it. It would seem to be composed
of two parts, provided with the same
organs appended to each of them. Some
saw it equally divided by a straight line,
~~on~~ one side of which was ~~red~~ red,



& the other white. It was in a palsy.
 Perhaps this may be one reason why
 cankers & other sores ^{so} seldom spread thro'
 the whole tongue. May it not be placed
 by means of this structure upon a footing
 with vision, hearing & smelling all of
 which are performed by a double set of organs?

2 The sense of taste is seated ~~in~~ only
 only in the tip and edges of the tongue. This
 has been demonstrated by many experi-
 -ments made by Bellini & since repeated
 by Dr Boenhave. The ^{lips - the} palate & fauces it is
 true distinguish some objects of taste. ~~the~~
 Thus belladonna is perceived ~~upon~~ upon
 the lips - Belladonna by the palate, and
 wormwood by the fauces, but these
 should rather be considered as specific
 sensations, than ~~specific~~ as



3. belonging to the sense of taste.

3 The nerves which are the more immediate means of taste, project from the tongue in small papilla which are of different shapes, and are furnished with small blood vessels which accompany them. The papilla are much larger in some quadrupeds than in the human species. The more they project, the more acute is the sense of taste.

4. The tongue is supplied with nerves for the common purpose of sensation from the 8th and 9th pair, but the 5th pair is supposed to furnish that branch which forms the more immediate organ of taste.

5. The tongue abounds with blood vessels. In the neighbourhood of the papilla

they ~~provide~~ furnish a liquor which is pou-
-red forth upon the tongue in order to
-favour the action of taste. This liquor
-is increased, and becomes in gross.
It is sometimes thickened in its con-
-sistency in which case the tongue is
-said to be foul or furred.

6 The sense of touch is more exquisite
in the tip of the tongue than in the
fingers - hence we distinguish the tem-
-ples of a egg by the warmth of one
end of it when applied to the tongue.
The fingers ~~are~~ ^{import} are unable to
perceive this warmth. It is because
the sense of touch is more acute in
the tongue than in the fingers that
children apply ~~to~~ the bodies that

✓ following circumstances. 1^o By
the =

u 2^o By the confinement of the object
of taste exclusively to the tips of the tongue.
In this way the purchasers of wine test its
quality. If it happen to ^{be swallowed on} touch the palate,
they eat or drink something to remove the
impression of the wine upon the ~~the~~ palate.

5

are put into their hands so generally to their mouths in order to ascertain their nature and qualities. ~~the~~
~~of~~ ~~the~~ ~~type~~ ~~of~~ ~~taste~~ ~~is~~ ~~influenced~~ ~~by~~ ~~the~~ ~~different~~ ~~periods~~ ~~in~~ ~~its~~ ~~development~~
~~of~~ ~~different~~ ~~stages~~ ~~of~~ ~~life~~. It is most ex-
quisite in infancy. It is for this reason that sugar which popifies but a feeble stimulus, is so grateful to young child-
ren. In more advanced life particular-
ly in old age, the tongue becomes less
sensitive to the stimulus of sweet sub-
stances, and requires saline, or aro-
matic substances to produce in it the
excitement of pleasure. ~~in~~ ~~it~~ ~~is~~ ~~the~~ ~~action~~ ~~of~~ ~~the~~ ~~substances~~ ~~which~~ ~~excite~~ ~~the~~ ~~pleasure~~ ~~in~~ ~~the~~ ~~child~~ ~~and~~ ~~adult~~ ~~life~~ ~~of~~ ~~the~~ ~~organism~~ ~~which~~ ~~is~~ ~~the~~ ~~cause~~ ~~of~~ ~~the~~ ~~difference~~ ~~in~~ ~~sensitivity~~ ~~of~~ ~~the~~ ~~taste~~ ~~in~~ ~~the~~ ~~different~~ ~~periods~~ ~~in~~ ~~its~~ ~~development~~

v of their power of exciting taste by
means of cold. It is reported by a
certain noble traveller, that all
bodies lost their sapid qualities upon
the cold summit of the pike of Teneriffe
Wine is said to have its most perfect relish
when the Thermometer is about 55°:-

day. Aids are most grateful in ~~the~~ summer, and ~~the~~ cordial wines in winter. Many rapid aids are derived
of by certain substances previously ta-
ken in the mouth. Bitter - pungent
and astringent and drugs, impart
a portion of their taste to all the
emulsions that are taken immediately
after them.

5 By certain Odors which pass thro'
the nose, and blend themselves with the
Objects of taste.

6 By certain diseases in the sense
of ~~taste~~, ^{also} in the nose & the brain. The
tongue when denudated of its skin, or
when inflamed, or otherwise diseased,
imparts the most enormous sensations
to the brain. a catarrh which

✓ Some Physiologists add
to, or certain insipid substances
to the number of the Objects of
taste, but they act negatively
only, and therefore should no more
be included among the Objects of
taste than the negative sensation
which arises from the absence
of light, should be considered as
one of the impressions of light.

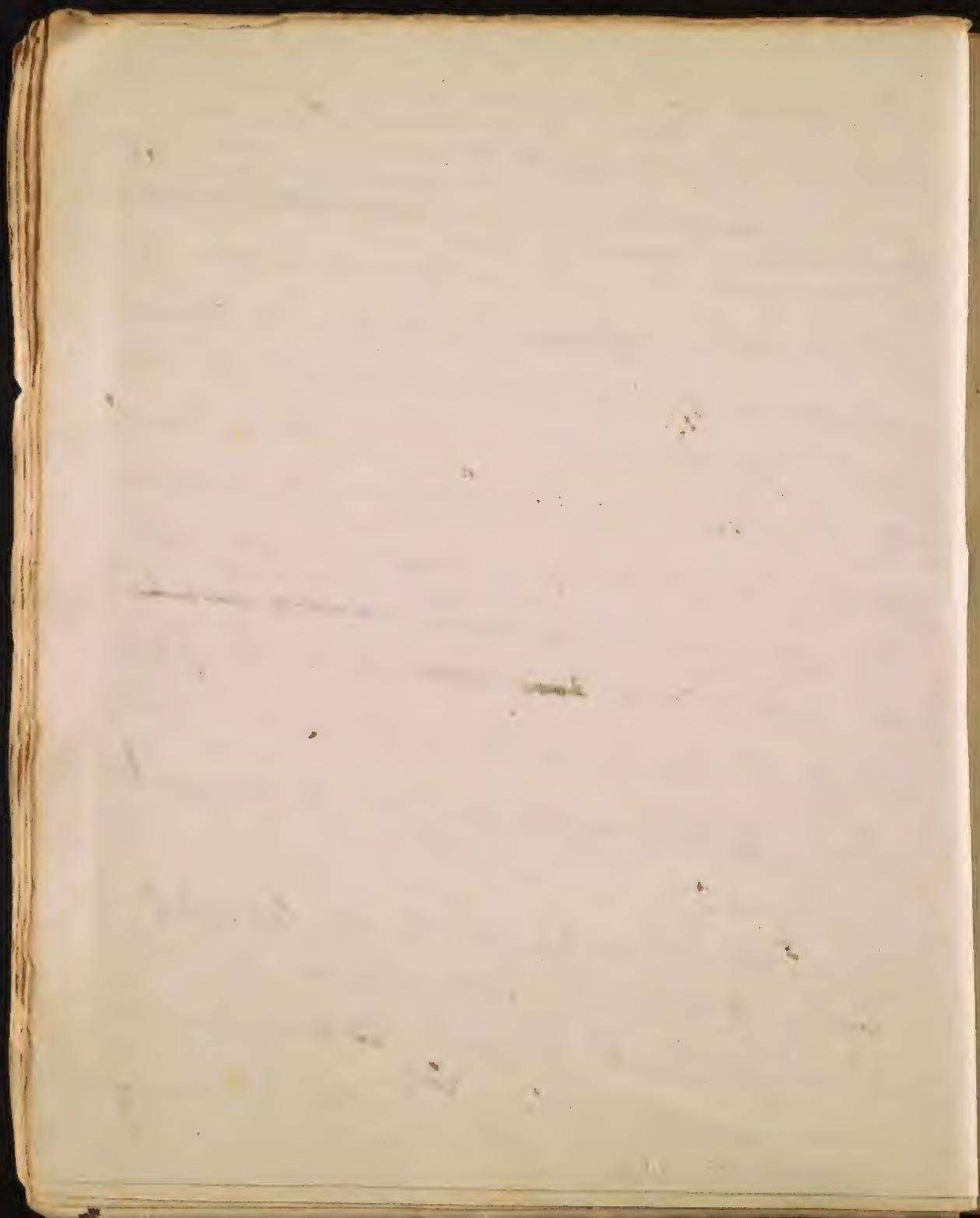
the nose 7
obstructs, or inflames the ~~phrenic~~ ^{the nose} delicate
membrane impairs or destroys the
sense of taste. A disease in the brain
has the same effect. To return

8. The objects of taste are such substances
as are sweet, sour, rough, bitter, saline,
vinous, spirituous, acid aromatic &
putrid substances. I often suppose them
to be sixteen in number. The probably
includes in them such impressions as
are made upon the lips, and faces. ✓
There is good reason to believe they
are like the primary colors but even
in number, and that the immense
variety of them are compounds of
those seven. There exists probably
among them the same harmony &
discord that takes place among colors.

✓ To this ^{the} remark

As green is the most usually agreeable color to the eye, & so there are certain objects ^{from its moderate stimulus,} ~~of taste that~~ ^{are constantly agreeable} ~~from their imparting the same~~ ^{intermediate and moderate degree of} impression ~~to~~ ^{to} the tongue. These are bread, milk, simple meats, and mild vegetables which like the virtue of our fields always please, but never satiates, while high seasoned food like the glasing red, ^{and vapid aliment like} ~~and~~ ^{the} the fable violet, ~~to the eye~~ soon Is all the taste, or leave it in a languid state, alike unfavourable to health & pleasure.

Of all tastes are excited by the vapid body being dissolved in the liquor which is secreted in the tongue. A dry tongue can relish nothing. In the solution of



9

rapid bodies in the mouth something like agitation takes place, for the tongue after receiving the rapid body throws it against the teeth, and roof of the mouth by ^{ch} means the solution is both expedited and rendered more perfect. ~~So~~ ^{To} the remark of the ~~so~~ ^{tongue} solution of a rapid body in the ~~so~~ before a taste can be perceived from it, there is one exception. The metals are insoluble in the liquor of the tongue, and yet they certainly impart a sense of taste to it.

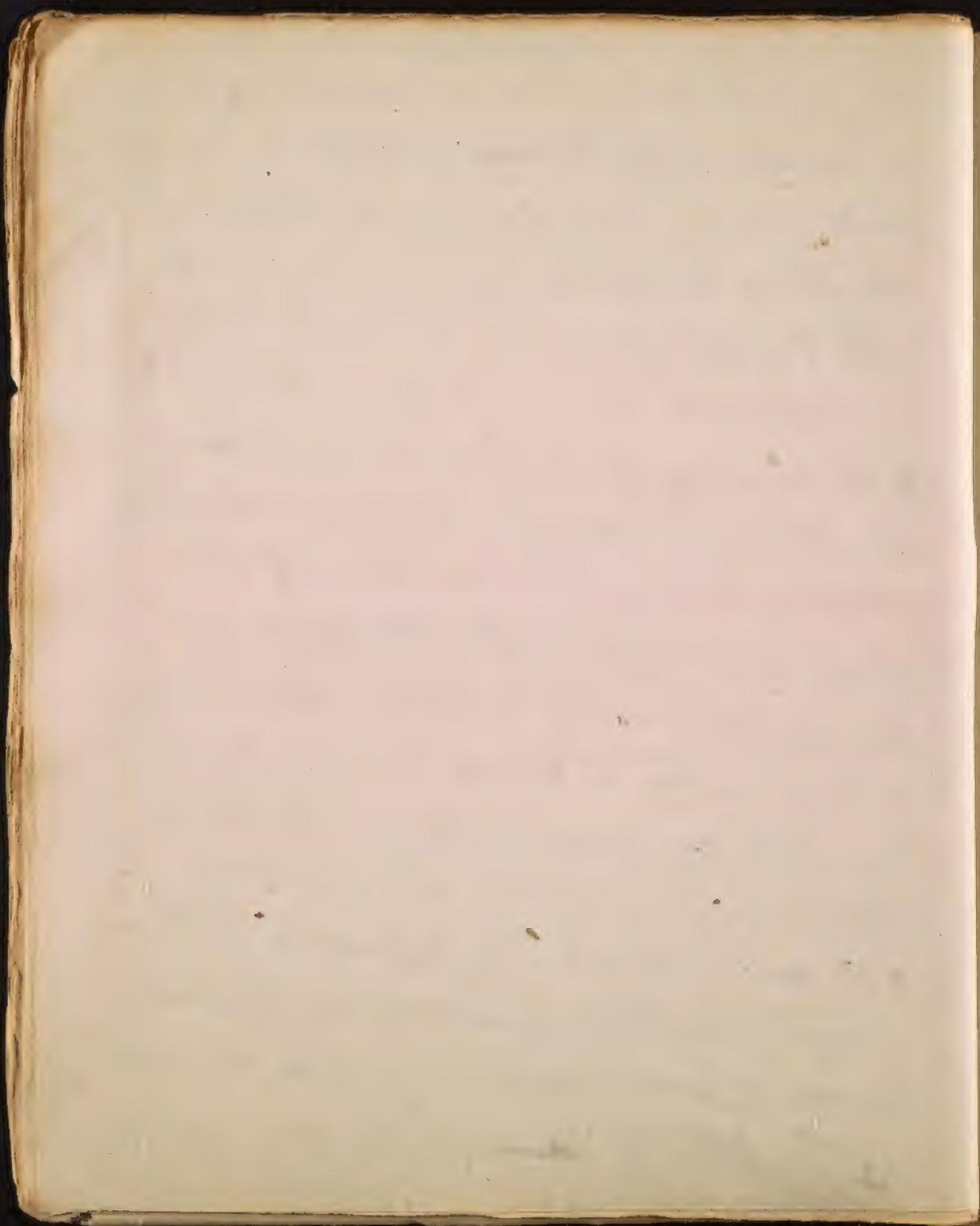
10 The perception of the sense of taste is much influenced by habit. Persons who have long been accustomed to drink ~~mer~~ wine can tell at once whether it has been taken from bottles, or drawn from a cask. They can even distinguish

11. The sensations imparted to the tongue
has some variety in them. They are
generally constant, as if - ~~so~~ they
arose from the continued action of
one impression; But some substances
create something like an Undulation
in the ~~upper~~ nerves of the tongue,
that is the sensation of taste increases
or lessens, or in other words comes &
goes. -

the most trifling alterations of it by a mixture of sherry or lisbon, or of both. There was some years ago an old madura merchant in this city who could tell by the taste, the wine of every parish in the Island of madura. ✓

12 The sense of taste, like that of touch is not an independent sense. It is intimately connected with the perfect exercise of the sense of smelling, - hence the reason why it is so easily affected by a cold, or by a disease in the nose. Even the eye aids the sense of taste. This is evident from our not being able to in some instances to distinguish the difference between several kinds of meat with our eyes shut.

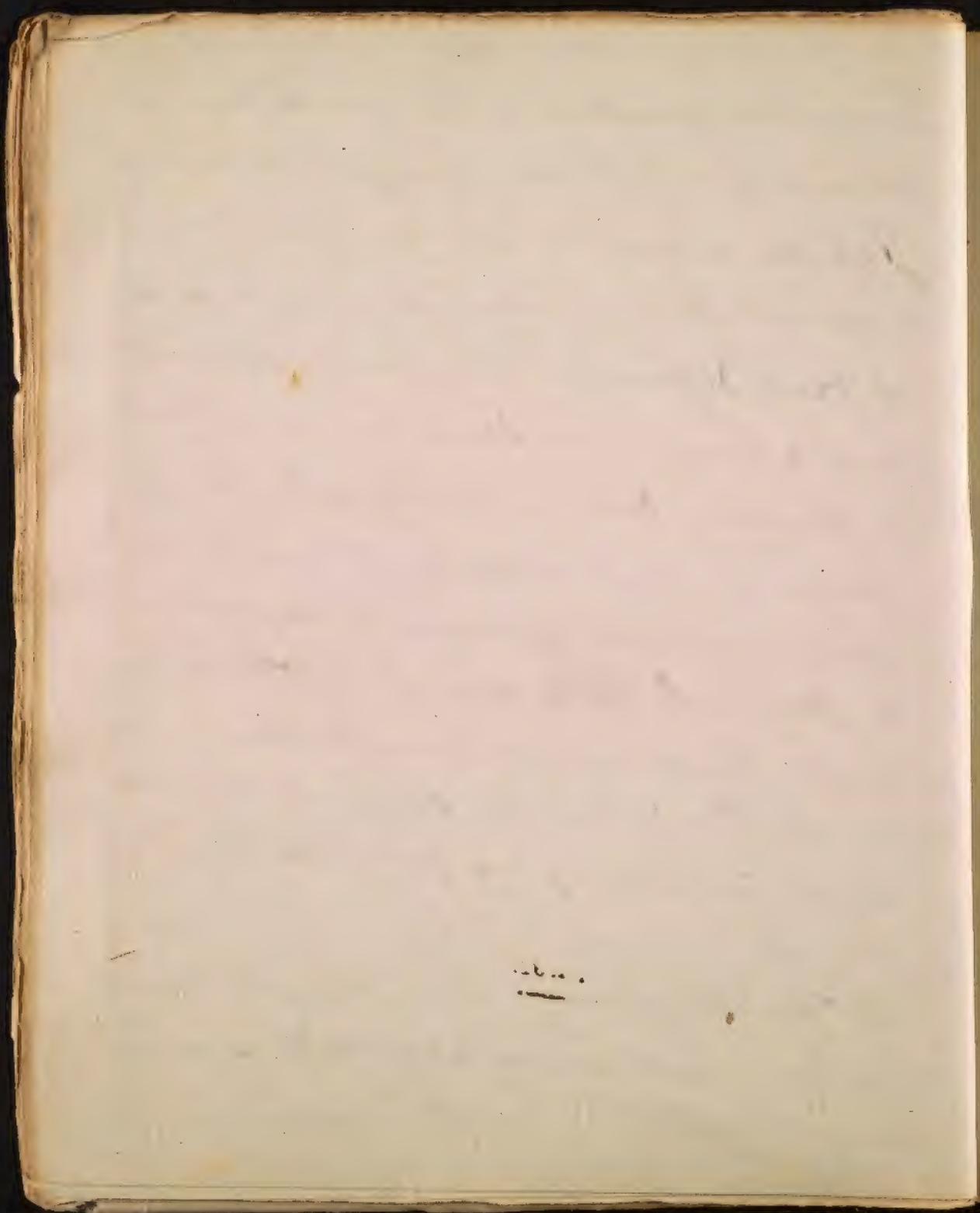
13 The sense of ~~taste~~ taste, like the



Sensation peculiar to the glans penis
formerly mentioned, may be transferred.

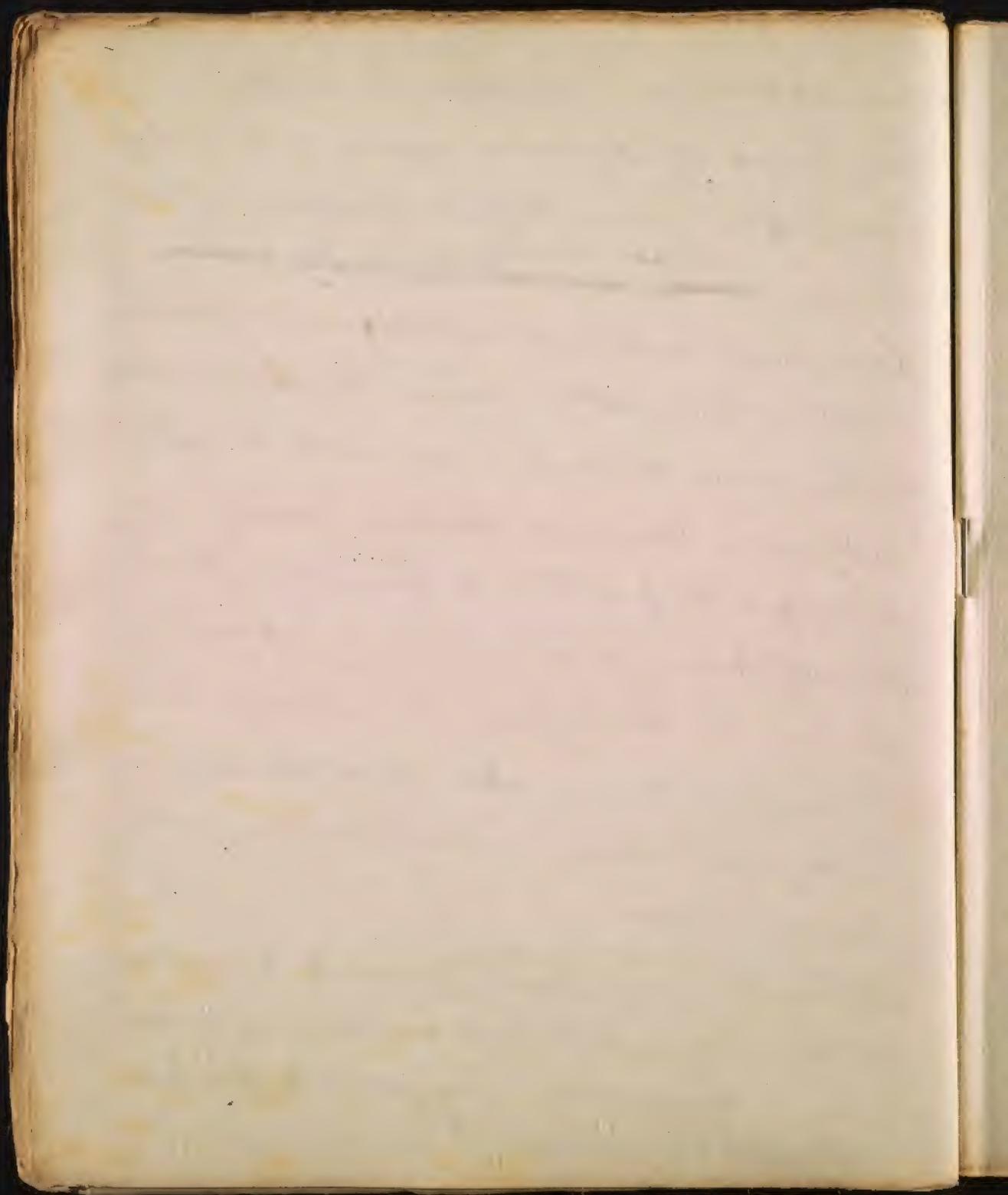
Jepium relates the case of a girl born
without a tongue who had a high sense
of taste diffused throughout her mouth,
and a surgeon in Saumur mentions
a similar case in a boy who lost his
tongue in the small pox. This sense in
some animals is supposed to reside in
the stomach. It is absent in others. In
the anteater and in several other ani-
mals, the tongue is supposed only to
assist in conveying food into the sto-
mach. —

16. The tongue has an intimate con-
nection with every part of the system,
and impressions made upon it have



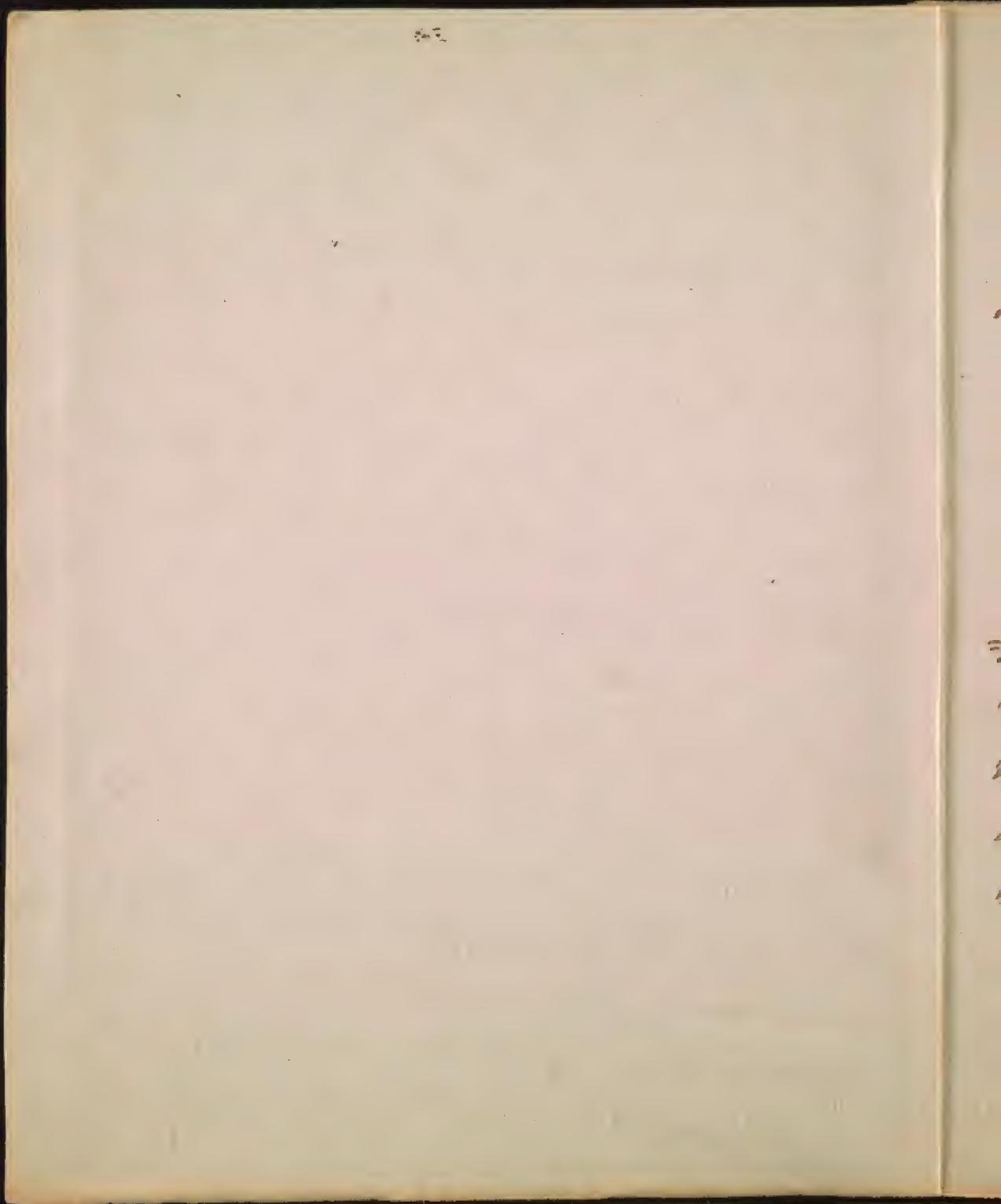
an extensive influence in medicine. A few drops of Lavender upon a lump of loaf sugar when dissolved upon the tongue ~~has cured the body from~~ - printing, and infused Vigor into every part of the body. From this sympathy of the nerves of the tongue, with the whole body, it is obvious cordial medicines intended to produce a general effect, should always be given in such a form as to diffuse themselves over the mouth in order that the tongue may feel their impression as long as possible.

15 The Sense of ^{taste} serves to direct us in the choice and preparation of wholesome Aliments, for while this sense retains its healthy & simple state,



Such articles of food as are agreeable to the taste are with a few exceptions, generally wholesome & nutritious. It is much perverted in civilized society by intemperance, ardent spirits and tobacco, for which reason savages & even the Beasts ~~of the field~~ ~~yet~~ ~~for~~ ~~not~~ derive more pleasure from its gratification than man in his most refined and cultivated state.

Having enumerated the principal and the most interesting facts which belong to the sense of taste, we proceed next to inquire into the cause of the variety of tastes, which are imparted to the tongue by the different objects



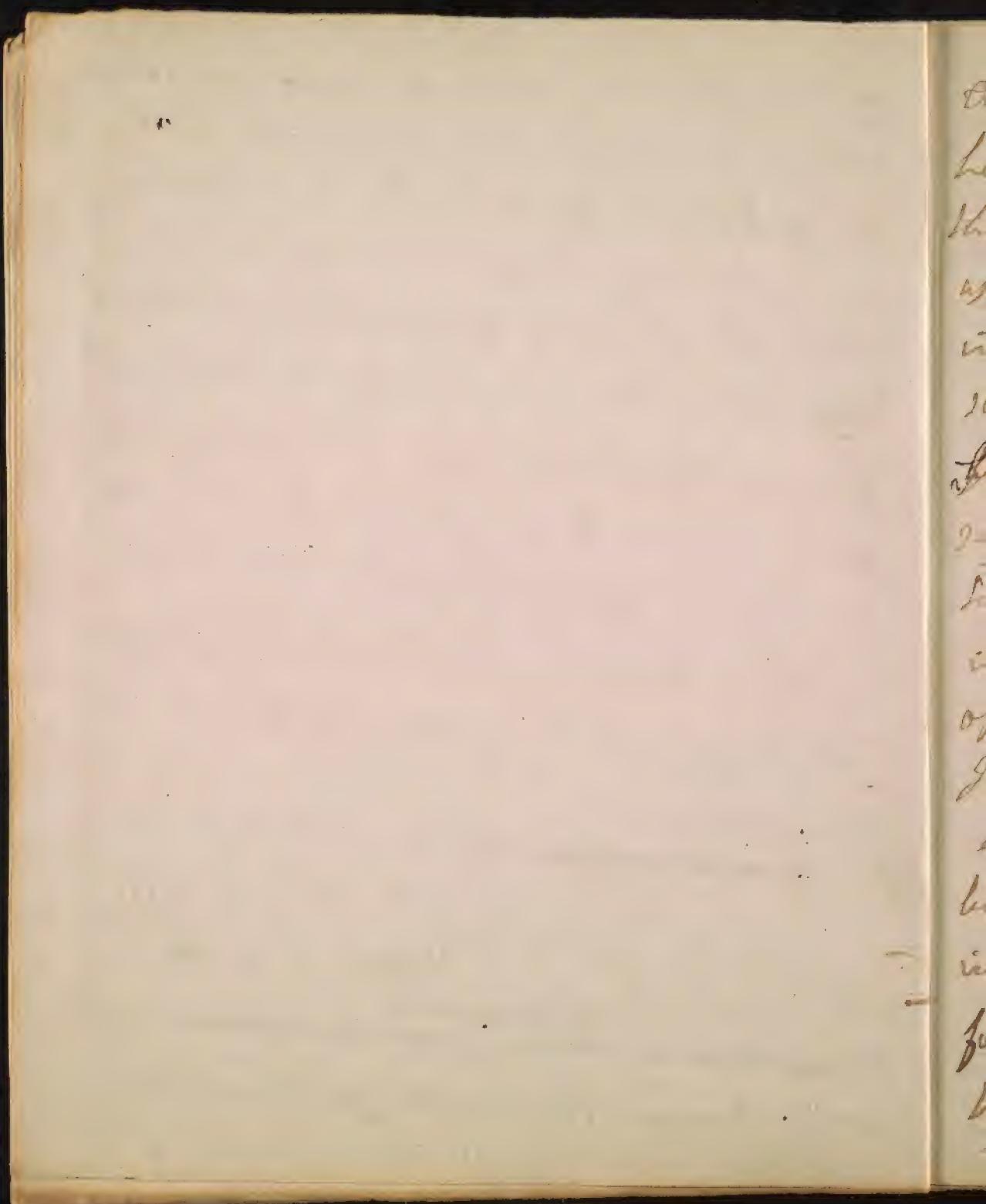
of taste. Baker & ¹⁴ some other philoso-
phers have supposed that all rapid
bodies owe their savor to their being
salts, and that each of these salts having
a figure peculiar to itself, imparts a
peculiar and specific impression to the
tongue; But this opinion is founded
upon erroneous premises, for all ra-
pid bodies are not of a saline nature, and
many saline bodies which have exactly
the same form, such particularly as
the salts of Soda and Sugar, impart a
very different sensations to the tongue.
The porous stones which have the
same ~~for~~ angular forms impart no
taste at all to it. —

Dr Reid has proposed another solution



of this question in his ingenious essay upon the mind. He observes that every solid body enters into mixture with the liquid upon the tongue, and that the Variety of tastes is occasioned by a similar Variety of new compounds formed by these mixtures, each of which gives a new & specific impression to the nerves of the tongue. This explanation however ingenious, is hypothetical, and is incapable of demonstration.

~~of taste~~ The following explanation of the cause of the Variety of tastes will I hope be more satisfactory.



16

as every thing ¹⁶ that as I hope to prove to you
hereafter depends upon a different motion in
the brain, so every different sensation of taste
appears to depend upon a different motion
in the nerves of the tongue induced by the ~~fast~~
rapid body which acts upon it. Thus
sugar excites by a peculiar & specific
motion in the nerves of the tongue, the
sensation of sweet - acids ~~sweet~~ and bitter
in like manner excite the sensations
of sour and bitter. That this is the case
I infer, not only from the manner in ^{ch} W.
hearing, pleasure and pain are produced,
but ^{from} many striking facts which occur
in diseases, for to diseases we are indebted
for our knowledge of many important
truths in Physiology. The facts I allude
to are as follow - Dr Hartley tells us

✓ Once attended a lady in an intestinal
disease in whom several of her drinks
and particularly port wine imparted
the taste of sugar.

that bitters, and acids applied to a finger
on the brain, produced the sensations of
bitter, and sour upon the tongue. This
appears to have been occasioned by exactly
the same motions being excited in the
~~two~~ nerves of the tongue from their
sympathy with the fingers in the brain
which when ~~are~~ directly stimulated
by bitters and acids produce those
~~same~~ sensations in the tongue. Again
Dr Dives informed me that he had a
patient in the summer of 1807 in whom
every thing she applied to her tongue
produced the sensation of bitter. This
appears to have been occasioned by
~~exciting~~ those substances exciting in
the tongue those motions ^{ordinarily} which
produce the sensations of bitter. — V

Of them is excited by those motions in the tongue which uniformly irritate or produce it. We have further from the solution of the cause of the Variety of tastes that has been given, the cause of the longings of women for particular kinds of Aliment during their pregnancy. These longings are generally accompanied with nausea, or what is called breeding sickness, which (from the habitual associations of the Stomach & tongue in its pleasures) excite those motions in the tongue ~~that~~ ^{that} were formerly associated with the taste of certain Aliments, - and as these Aliments thus tasted are generally of a pleasant nature, they become Objects of Vehement desire, or in other words of what are called longings. We shall see hereafter, that all the senses, & even ^{the} brain are upon the same footing in producing their specific effects. = over left hand

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I have heard in like manner of the
sensation of Oil being excited by every
kind of rapid body that was applied to
the tongue. The nerves ^{of the tongue} in all these
cases are in a disordered state, and refuse
to act in their ordinary manner from
the impressions that are made upon
them. This solution of the cause of
the Variety of tastes accounts for the
many false sensations to which this
sense is exposed in different people
& particularly in children. It accounts
for memory imparting the taste of copper
to the tongue in the beginning of a
febrile affection. It explains the reason
likewise why in our dreams we
enjoy the taste of the most agreeable
elements. ~~The~~ The sensation

= I am aware that ~~an~~ ^{a different} individual nerve
is appropriated by some Physiologists
to each individual sensation. Should
this be the case, it will not invalidate
the theory I have delivered. The ~~fact~~
~~is that~~ ~~the sensation will depend in this~~
~~want of concord between the~~
~~two sets of the~~ ~~opposite sensations~~
~~and the impression made~~
~~upon the tongue will depend in this~~
~~case upon a difference in the nerve~~
~~stimulated, instead of different motions~~
~~in the same nerve or set of nerves.~~

go to 21.
the sense

The sense of taste like that of touch
is capable of extension & improvement.
The means which have been
found useful for this purpose are

1 Removing all those diseases from
the tongue, and from parts which
are in sympathy with it which
prevent or impair its healthy actions.
The Stomach is very apt to vitiate
the taste, for which reason our
remedies should always be directed
in the first instance to be
applied to the Stomach.

2 A moderate degree of depletion. The
works in Paris written by Mr. Richardson tell us
in his recollections of that city,



20

take physic regularly & constantly
to procure an appetite & want of
taste. We had a physician some
years ago, who always took a purge



in whom the ~~power~~²¹ of taste is absent
from the tongue, it may be seated in
gums or
the stomach, or found other parts of
the body.

The sense of taste like that of touch
may be extended and improved, by the
following means.

- 1 Removing all those diseases from
the stomach & tongue and ~~use~~^{use} which
I said formerly prevent or impair it.
- 2 By a moderate degree of depletion. ~~This~~
Cooks in Paris say Pichetot tells us in
his recollections of that city take physic
regularly and constantly in order to
preserve acuteness & correctness of taste.
We had a physician in this city some
years ago who always took a purge

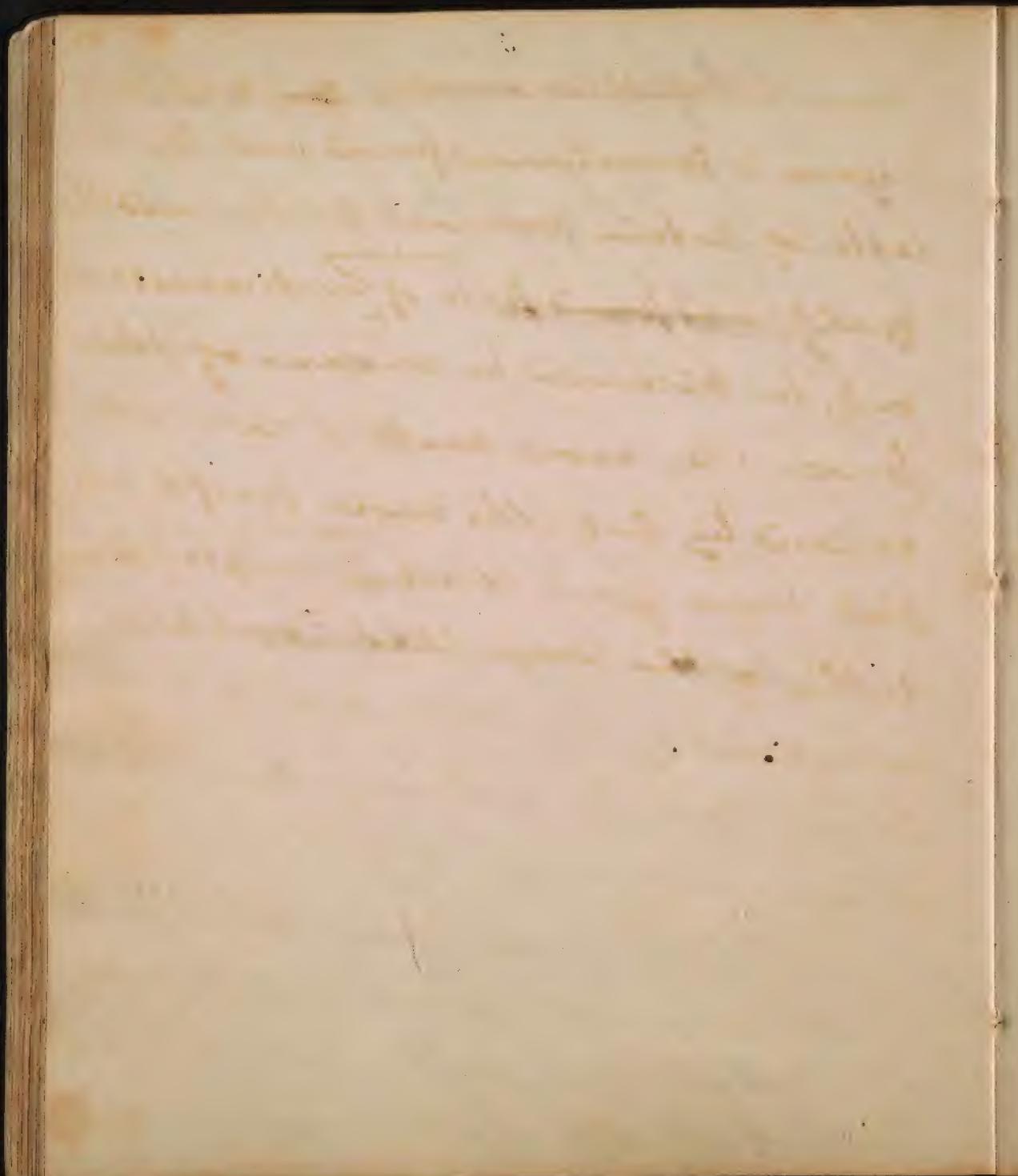
~~more that reason or speak~~

✓ 4 By closing the eyes and obliging
persons to detect different rapid sub-
stances applied to the tongue.

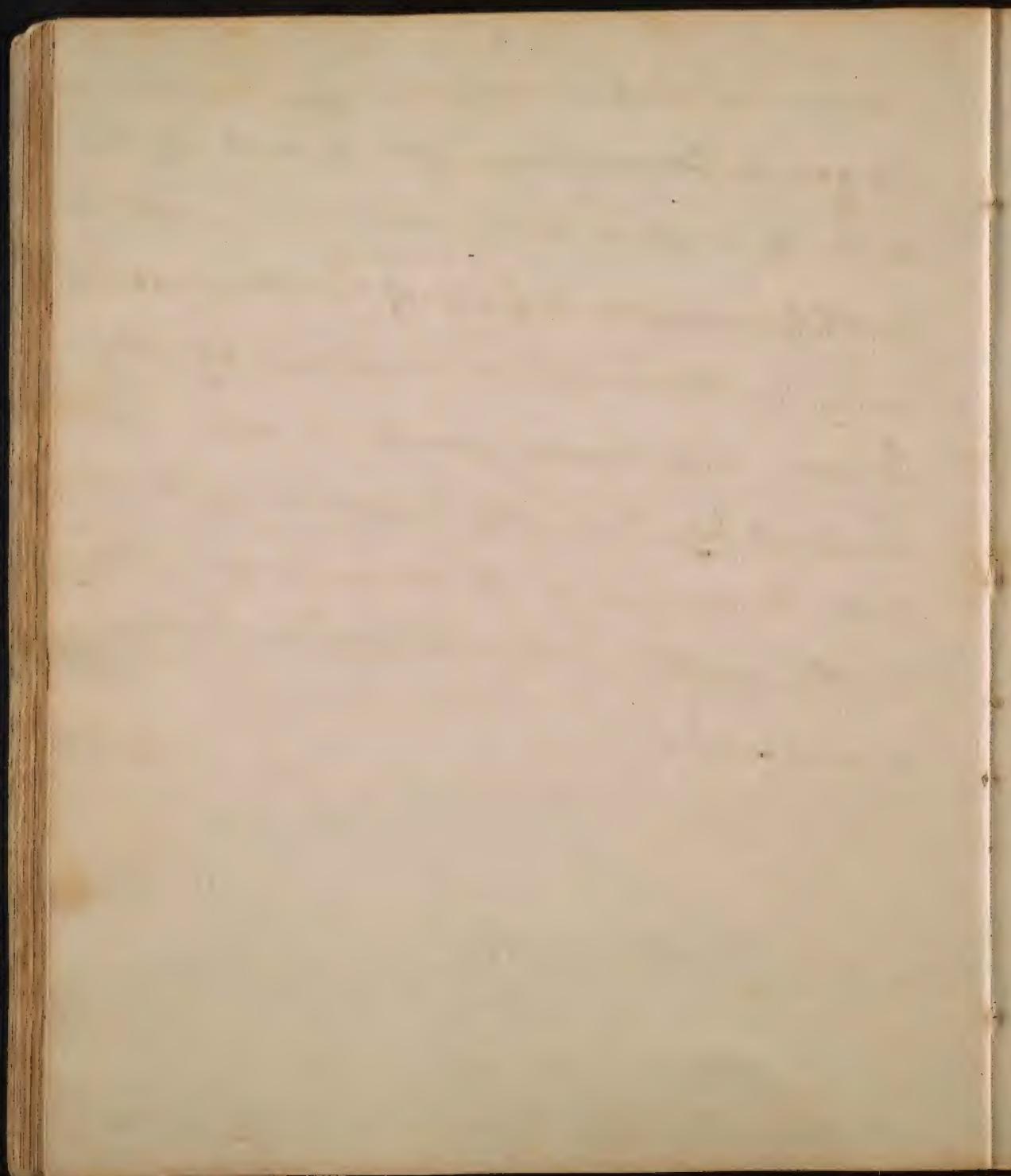
The day before he went to a ²² feast pro-
bably for the purpose of increasing his
relish for his food. Tasting has the
same effect.

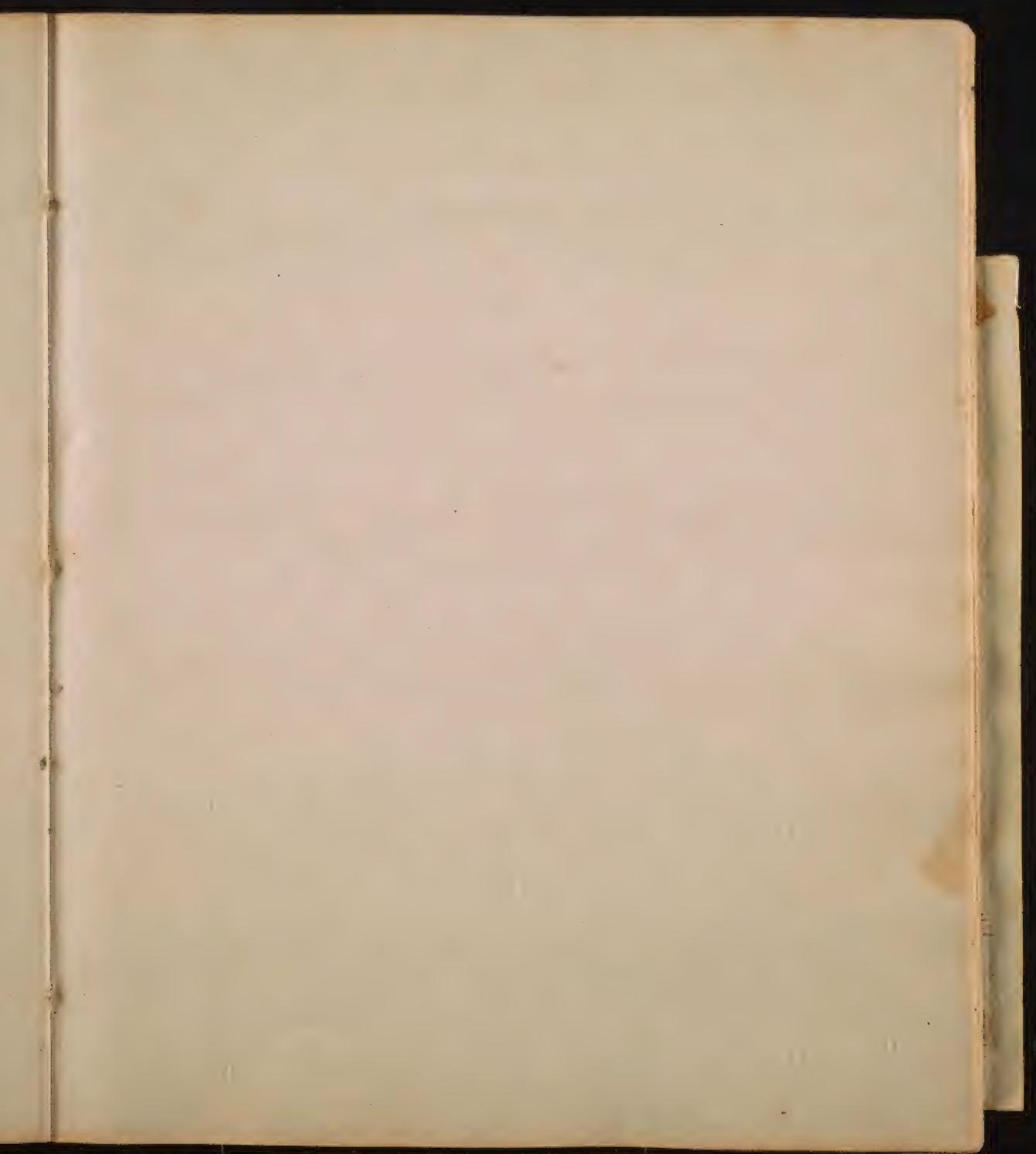
3 By ~~destroying~~ variety in aliment
and drinks. The relish ^{for} wine when
it begins to flag upon the taste, may
be revived at any time, by eating a
little cheese. In this way, ^{likewise} relish of
wine ~~and~~ a return ~~to~~ the
conscious of this taste, so as to be able
to purchase by trial large quantities
of wine at a time. V

The improvement of the sense
of taste is calculated not only to add to
the pleasures of the table, but it may
be rendered useful in various arts, &c



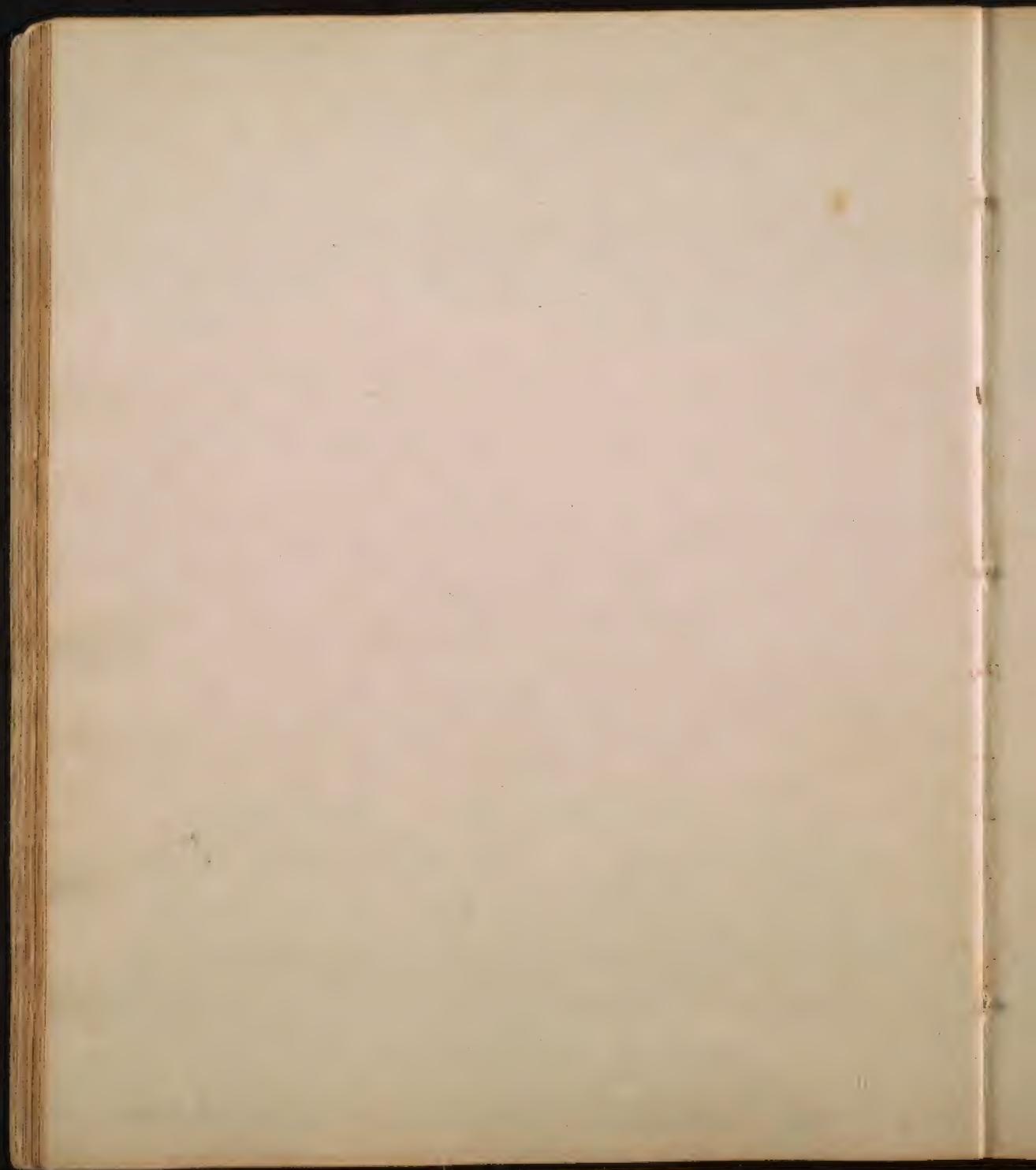
even in medicine. The ~~the~~ nature of
diseases is sometimes found out by the
taste of certain animal fluids, and the
quality and ^{many} found state of ^{many} medicines can
only be discovered by means of this
sense. The more acute it can be
rendered by Art, the more benefit we
shall derive from it when employed in
either of the ways that has been
mentioned.



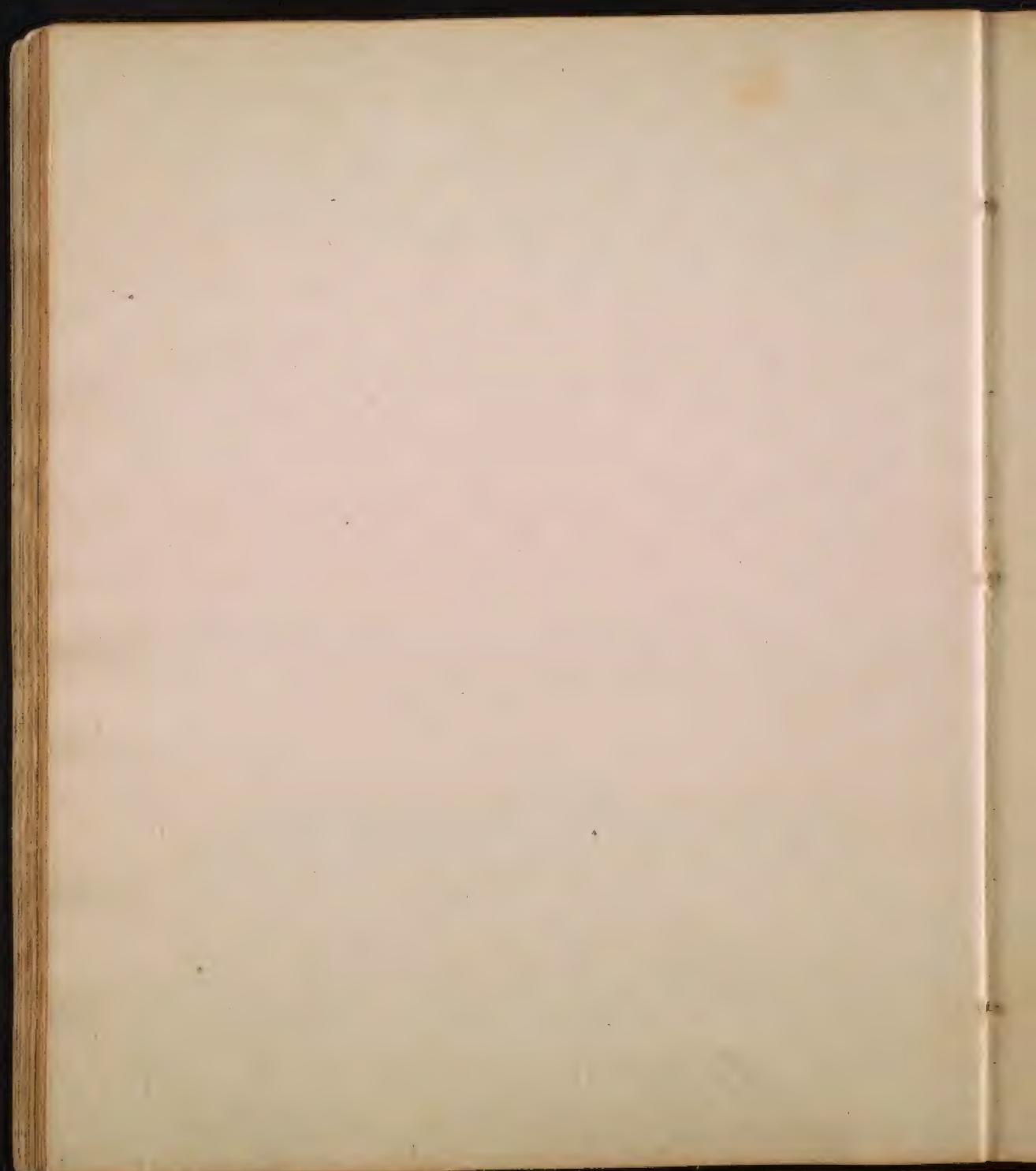




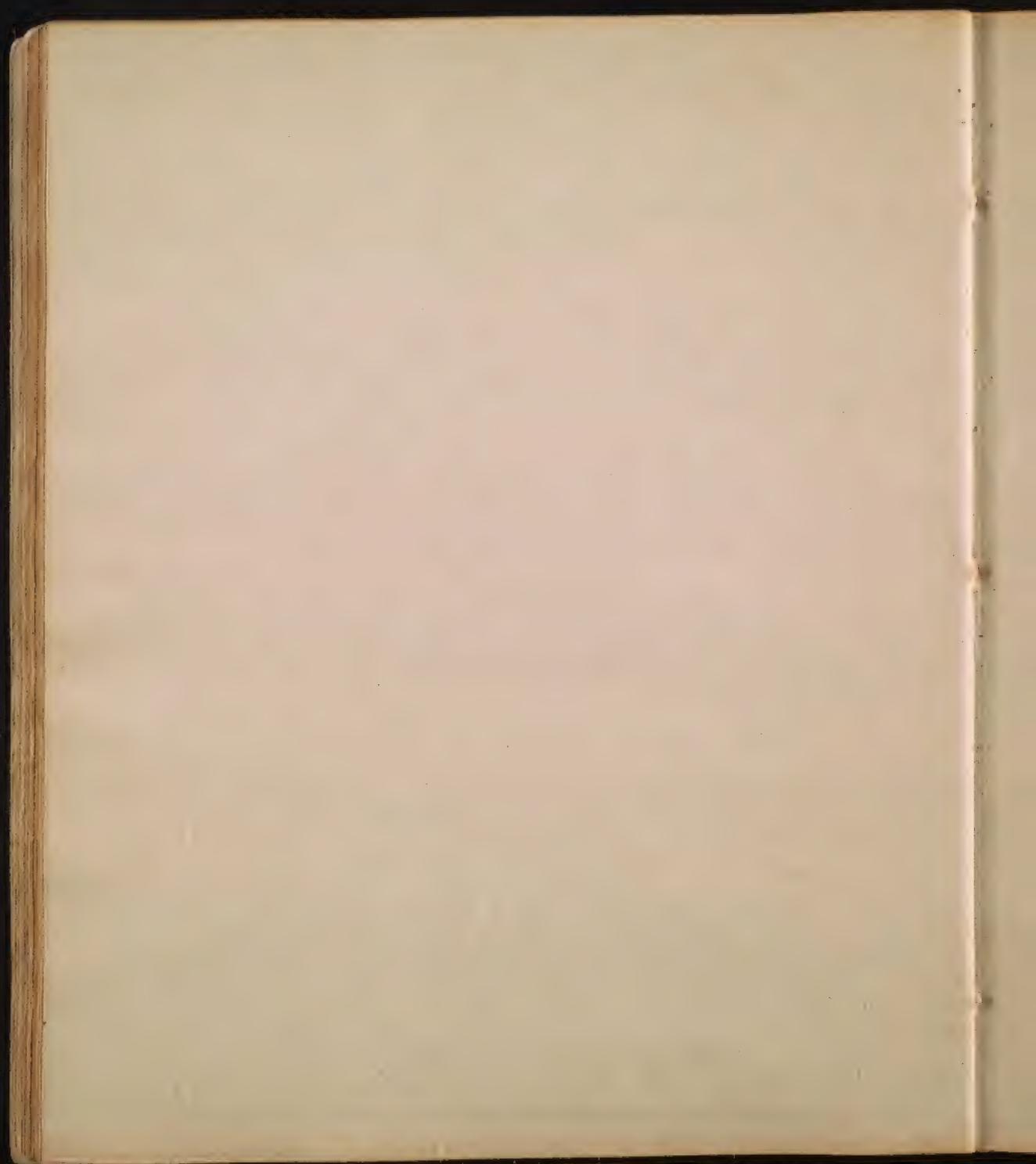








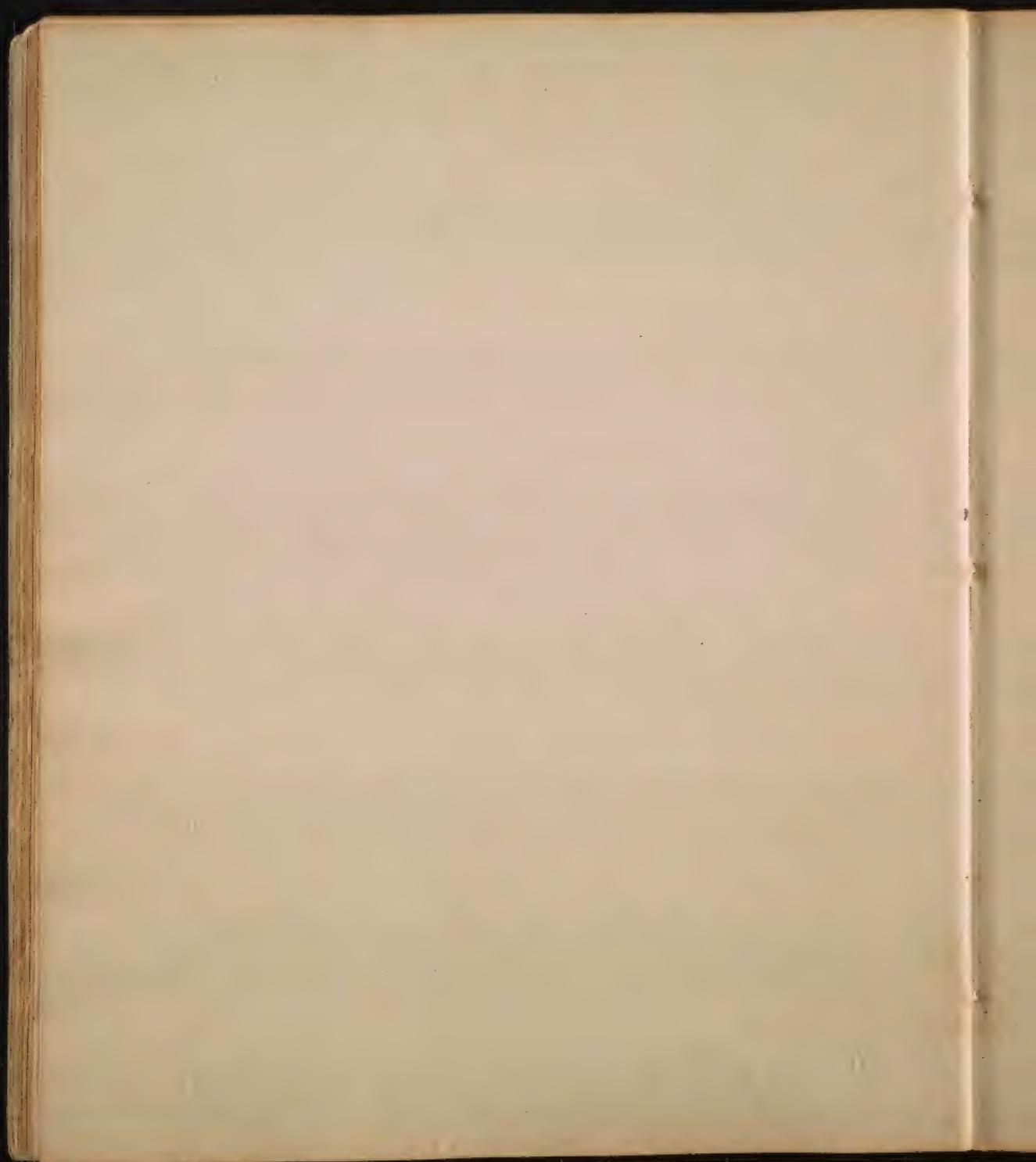




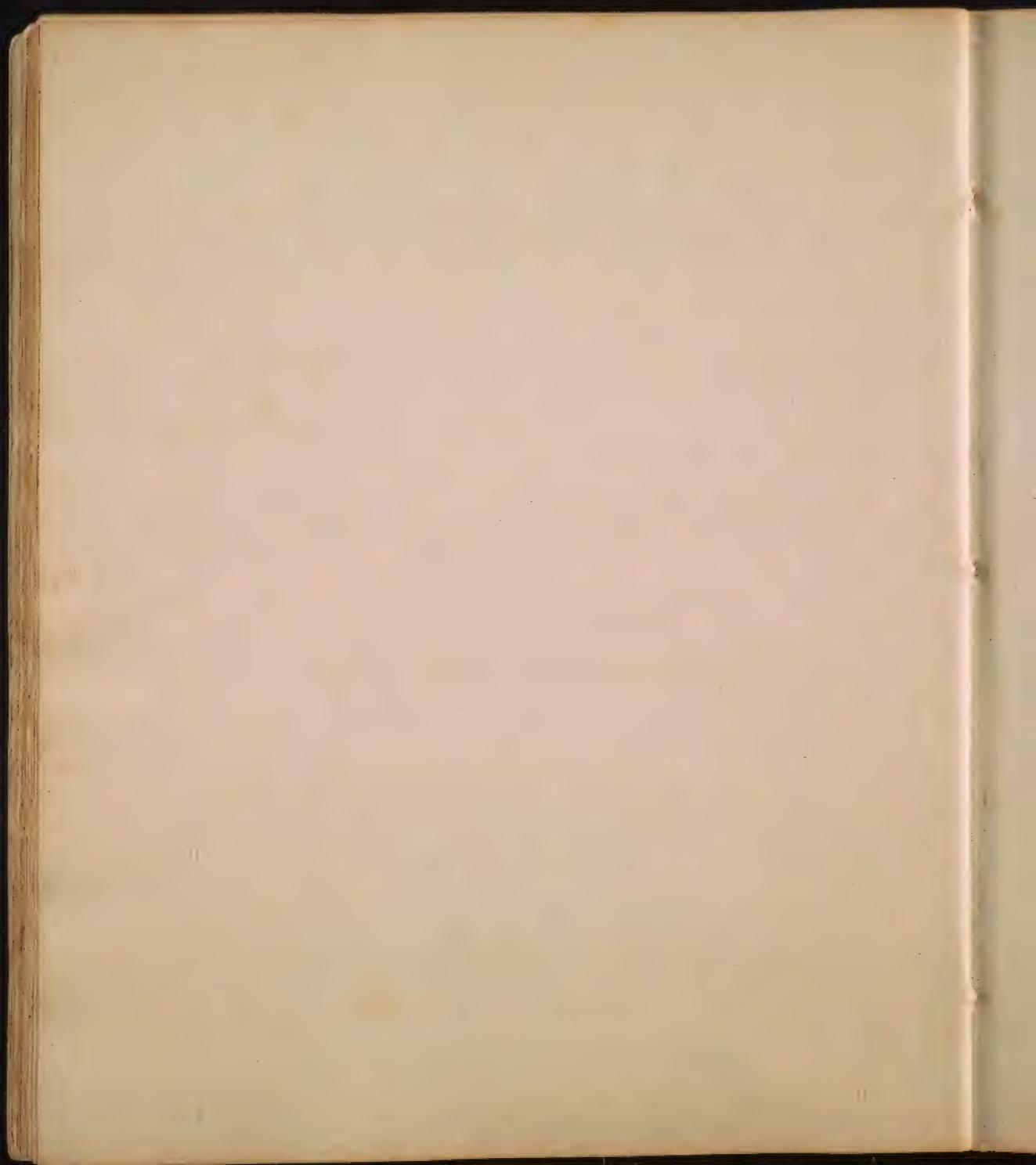




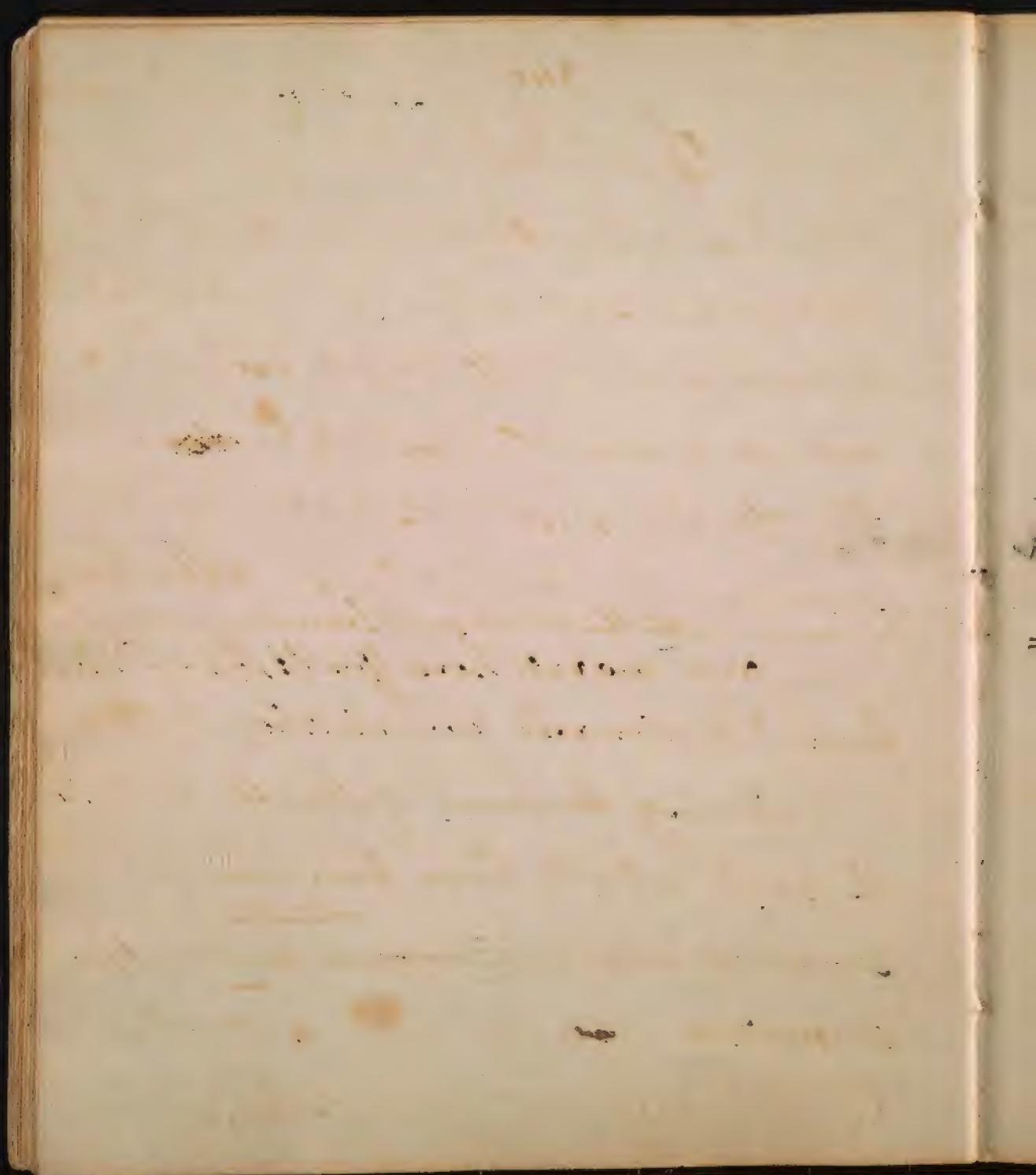










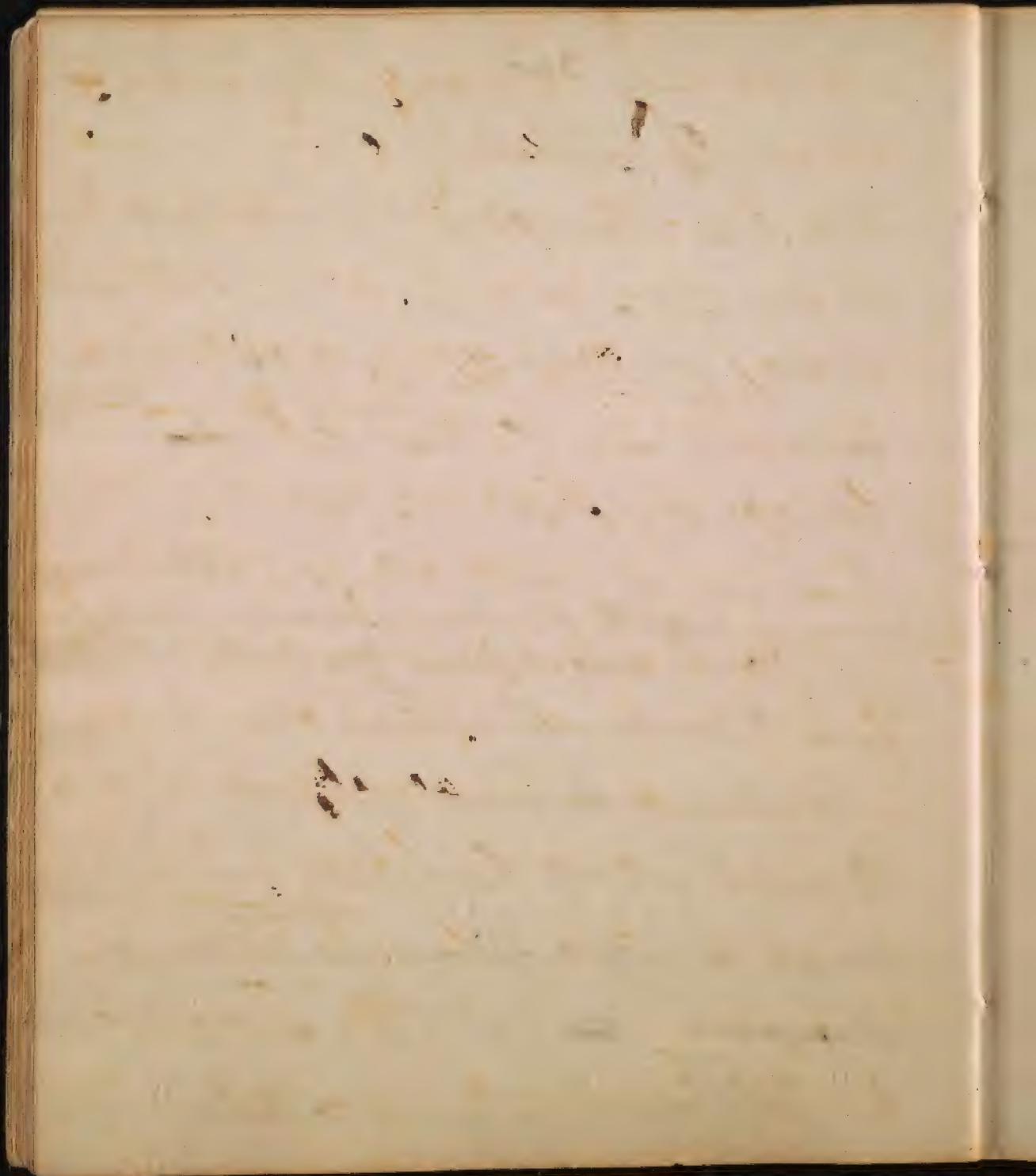


of Smelling

The sense of Smelling is performed by means of a soft pulpy membrane full of pores and small cusps which is extended over the nostrils & ~~also~~ over the osa spongiosa - the septum of the

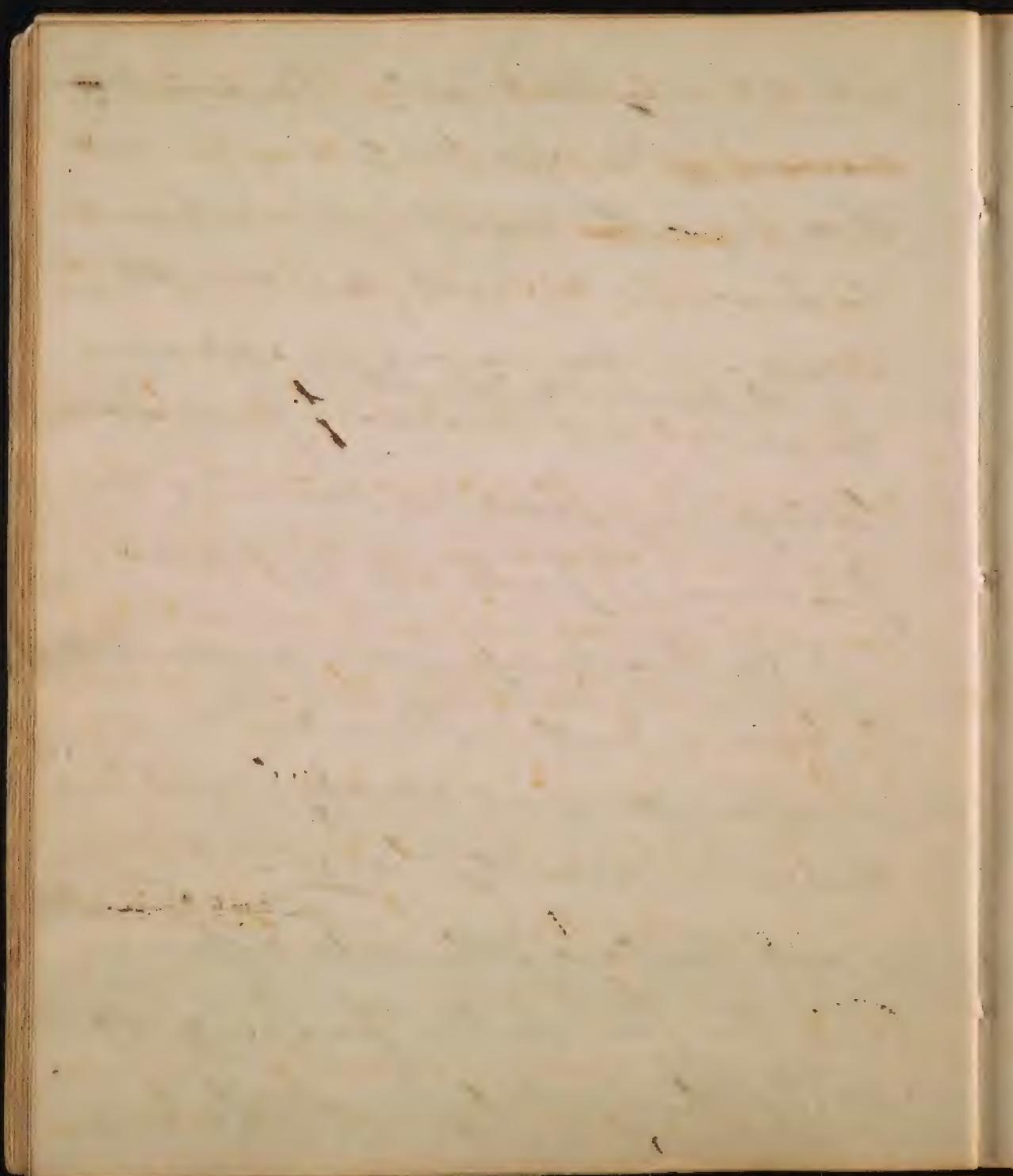
nose and the ethmoid bone. This membrane is called the pituitary & Schneiderian membrane. I am aware here Gent: that I differ from Dr. Hales and several other Physiologists in confining the sense of Smell only to the parts which have been mentioned.

~~but~~ ^{thoroughly} ~~now it might be confined to the osa spongiosa~~ ^{in the} ~~osae spongiosae~~ ~~it~~ Its extent to the septum & Ethmoid bone seems to have been



intended only to supply the defect ^{or} ~~of~~ of the *Os a Spongiosa* - for on these bones the impressions which excite the sensation of smell, are chiefly made. — My reasons for excluding the ^{the Os a Spongiosa & the Ethmoid} frontal and maxillary bones from having any share in producing the sensation of smell are as follow.

1. If these bones were necessary to the sense of smelling, those animals which smell most acutely, would have them proportionably large - But this is not the case. The only difference, is in the size of the Os a Spongiosa and ^{not} in the frontal bones. The larger

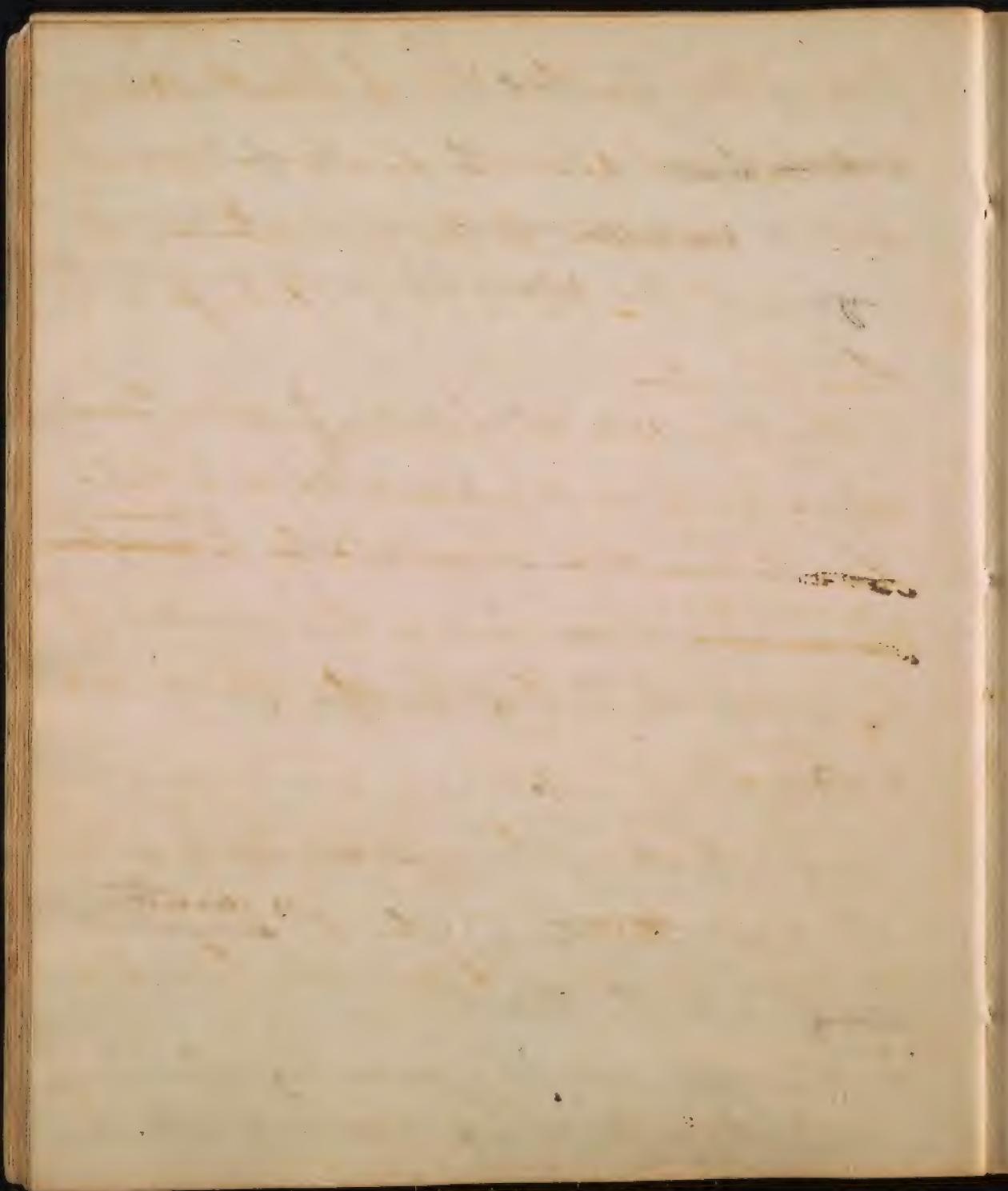


size of the frontal sinuses is intended to defend the heads of animals, and to afford a more extensive surface for the origin & insertion of muscles.

-cls. -

- 2 In animals of the same size which differ in their antennæ of smelling, there is no difference in the size of the frontal sinuses, but a material difference in the size of the Osa Spongiosa.
- 3 All the Simpæs have a winding opening which is turned away from the nostrils, and which ^{is directed} ~~enters~~ directly into the throat.

- 4 The air instead of entering these sinuses in smelling, appears rather to be discharged



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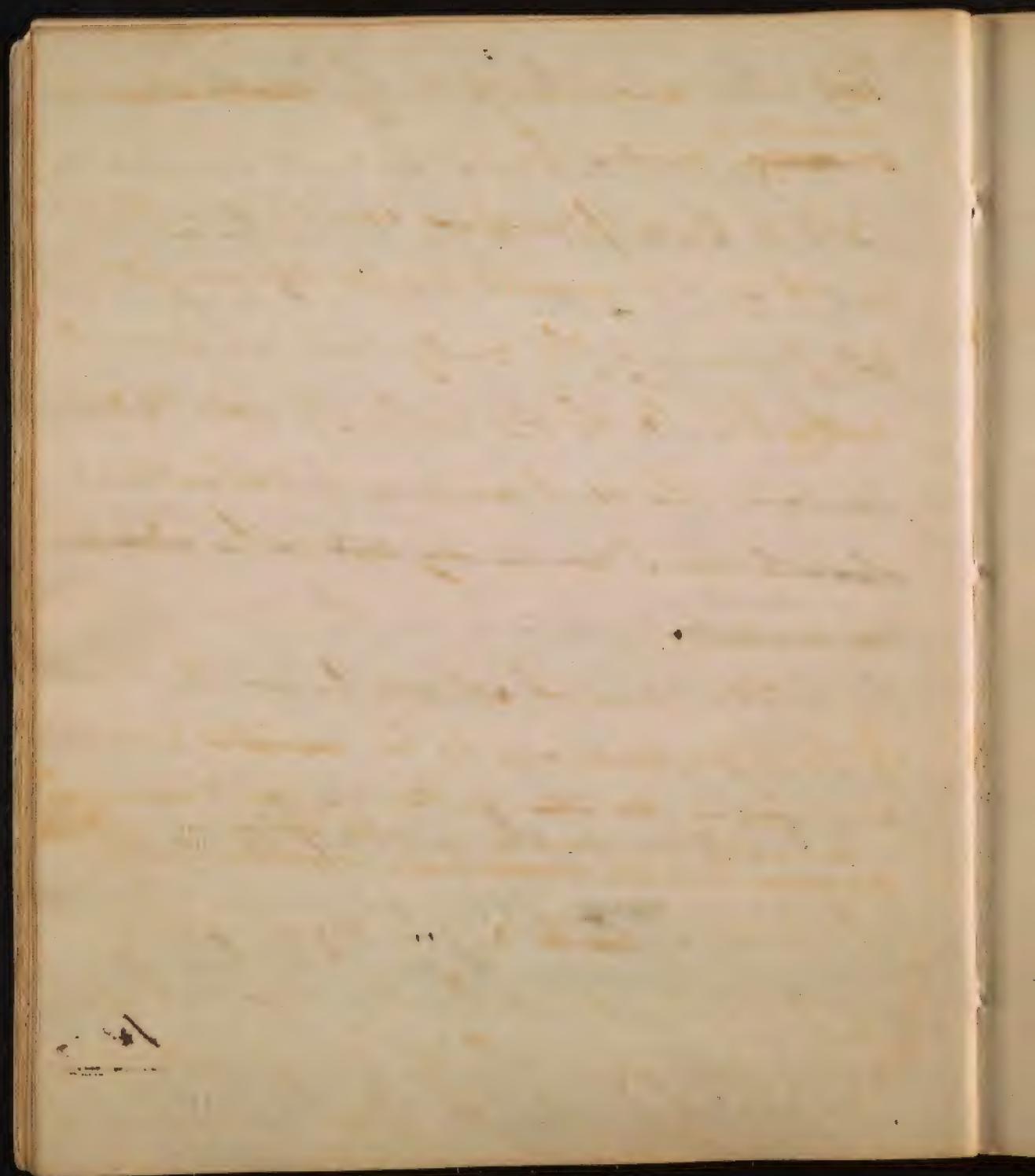
from them in the act of smelling.

5 Irritant substances do not give pain when applied to the membrane which lines the internal surface of these pimples. —

I exclude the pimples further from containing and passing forth a fluid whose use is said to be to ^{prosome} ~~as constant~~ ~~the~~ moisture in the mucous of the nose - and that for the following reasons. —

1 We observe the greatest quantity of mucus ~~of~~ discharged from the nose in children before the pimples are formed

2 In no position of the head, do



They ~~had~~ ever discharge any ~~excess~~ of moisture ~~water~~ from the nose. —

3 Did these pinches contain a fluid in them, it would unfit them for performing the only use we formerly ascribed to them which, was to increase those tremors or vibrations on which I formerly said the Voice depended. —

The Mucus which lines the inside of the nose, appears to be ~~secreted~~ poured out from ~~the~~ arteries, and ~~being~~ deposited in ~~the~~ crypts of cells or in ~~extending~~ ducts in the nose. ~~It~~ a due degree of tenacity in it is kept up by the constant effusion of tears from the the lacrymal gland. This moisture in the nose is indispensable

✓ The heat of the Nose in middle life
dissipates its superfluous ^{gradually} excretion, but
~~is not strong~~ - it is discharged ^{in old people} in large
drops - hence poor men who are not
provided with handkerchiefs generally
introduce themselves to you by rubbing
their hands across their nose. -

¶ The sense of Smelling is more universal,
than that of taste, from its being more necessary
~~for~~ in咀嚼ing food. It begins in early
life. ~~so~~ New-born infants appear to be
led by this sense to desire their mother's milk,
for they ~~are~~ hear imperfectly for some
time after birth. The nerves which form
the organ of smell are larger than those
which form the organ of taste.

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to the act of smelling. — ^V

The ^{internal part of the} nose abounds with blood vessels which ensure the possibility of the nerves of the nose. Those vessels are ^{not only} ~~too~~ numerous, but slender, — hence the facility with which they are ruptured from accidents & diseases, more especially in early life. — ^H ~~and that the nose~~

To the performance of smelling & the inspiration of air is absolutely necessary.

No smell is perceived by an animal in whom the aspera arteria has been cut & The force with which the air is and expiration. — inspired by the nose tends very much to promote the ^{effect of injurious} ~~extinction of the disease~~ ~~body with the same intensity~~ on the organs of smell. — The shorter the

✓ The sense of smelling is further rendered more acute by shutting the mouth. & for the same reason - none of the effluvia are wasted in the mouth.

Numerous as the objects of this sense are they have been divided by Linnaeus into 7 classes they are 1. The aromaticae - as the Rose & musk. 2 The fragrant as the lily, & Jasmin. 3 Aromatic as the Spices. 4 Alliaceous as Garlic Onions, ^{the poppy} Asafoetida. 5 Heated - as Valerian 6 Vivous - as ^{Opium} Poppy. & 7 odoraceous as the gourd & peony.

The sources of Odors are much more extensive than has been supposed. They are even from metals & stones. In order to

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acts of inspiration, - the better for this purpose, - hence when we wish to smell most acutely, we imitate the greyhound by a number of short & quick acts of inspiration. - The whole of the effluvia of the odorous body is moreover concentrated by these means ~~in~~ the nose, and none of them ^{is} or wasted in ~~is~~ conveyed to the lungs. - ^{* V}

~~The variety in Odors like the Variety in the Objects of taste is supposed by Dr. Reid to depend upon certain mixtures formed by the ^{sensation of} union of the Odorous body with the ^{processes of the nose} ~~processes of the nose~~ ^{the more independant than} This sense like that of taste is not altogether so - It is ^{more} ~~less~~ ^{in a small} degree to the eyes. - ~~but~~ ^{and} ~~and~~ ^{it is} ~~it is~~~~

produce odors, it is $3\frac{1}{4}$ necessary the matter that
create them should be a gaseous or volatile
state. They are converted into this state by
heat, friction (as metals & stones), ferment,
solutions and mixture.

The matter which acts upon the sense is

often so subtilized, as to escape observa-
tion, and almost to exceed conception.

A single drop of the oil of a damask rose
will often impart such a smell to a pint
of sweet oil, as to render the whole mass
fragrant for several years. A grain of
musk has been known to perfume
a large room for twenty years. The
Unine of the Phœnix often pervades whole
townships in the Country. Putrid odors often
clad to woolen garments for several
days. This I once experienced after visiting

for

+

A. This sense, tho' more independent than that of taste, is not wholly so. It is tributary in a small degree to the eyes. This ~~is~~ is much aided by fanning which discharges inspired air, invigorates the circulation in the nose, and rouses ~~the~~ its nerves from an occasional torpor. Now fanning is often promoted by a sudden glare of light, and hence we often find it induced by it, particularly in the morning a time when fanning is most necessary to perform all the uses that have been ascribed to it. But there is another proof of the connection between the sense of smelling and the organ of



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vision, and that is strong odors sometimes from the eyes.

I shall now mention ~~the use of~~ ^{some peculiarities.} the use of smelling.

1. It affords some assistance to the use of taste in deciding upon the natural qualities of many articles. It is often employed in judging of the quality of Wines. The Madeira merchant whose I before mentioned, could distinguish the wine of every parish in the Island only by its smell. It is from its convenience to the taste that we lose ^{our} ~~the~~ wish for many articles of our food by ~~smelling~~ that form of a cold which is called Coryza. —

2 It has sometimes been the means of

V 3 It is intimately connected with the production of diseases, the bowels have sometimes been moved by the smell of ~~rot~~ ^{putrid} excrements, the stomach by the smell of putrid matter & the lungs by the ^{smell} ~~smell~~ of tobacco. But this ^{is} not all - the brain - the nerves - the muscles, and even the blood vessels have all been thrown into commotions by effluvia acting upon the ~~sense~~ sense of smelling. ~~As~~ As a proof of this, I shall hereafter mention that the deleterious effects of some of those effluvia are prevented by closing the nostrils.

supporting life. Hunger has often been suspended by it. Lord Balfour mentions an instance of a nobleman who lived five days wholly upon the ~~smell of~~ ^{smell of} garlic and onions. ✓

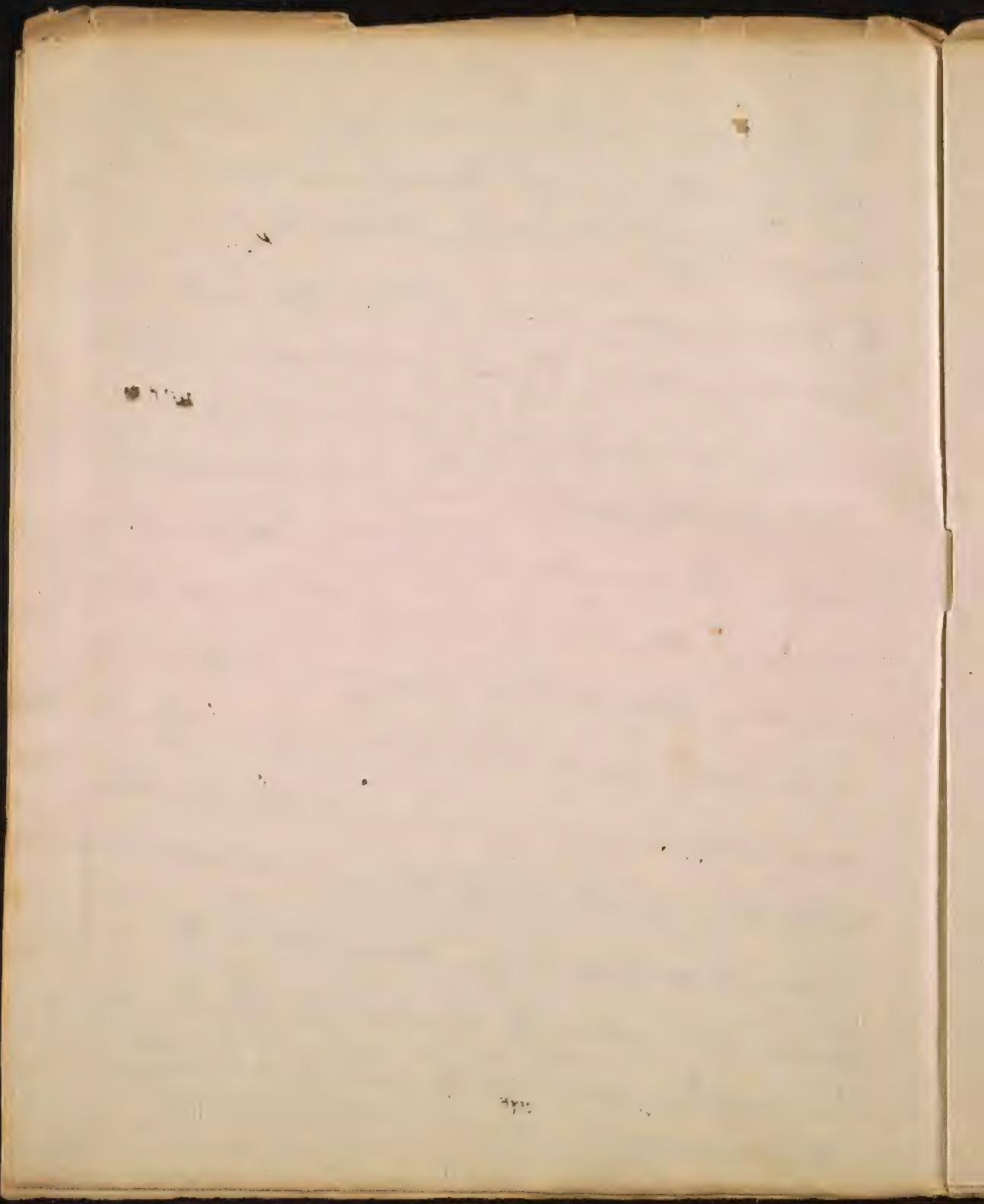
4 It has an intimate connection with medicine. Many remedies are applied to the whole body thro' the medium of this sense. These are chiefly volatile, aromatic and fatty substances. -

5 It is connected with the intellectual powers of the mind particularly the imagination. This is so obvious that Linacre has pronounced the sense of smelling to be the sensitive organ of that faculty of the mind. It is a fact that the aspirations of ideas are

✓ It even affects the papions. Dyes are
rarely ~~isolated~~ in dying red, the color
of which is made by the solution of
tar in nitre and with a mixture of
lochincal, & ~~of~~ they are dispersed
by ~~water~~ dying blue of which Indigo
is the principal ingredient.

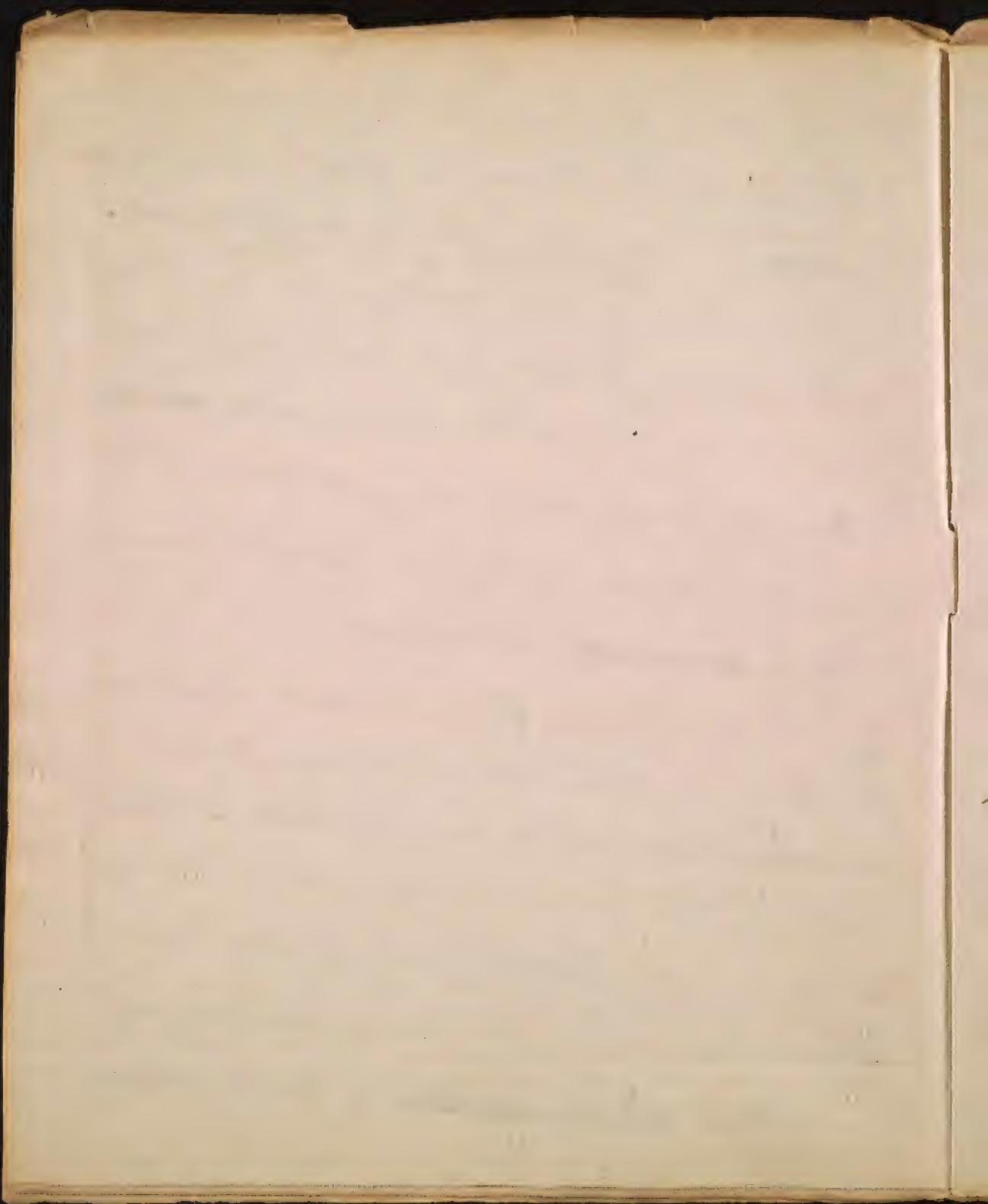
more prompt & more numerous thro'
the medium of this sense than
any other. — ^{De L'Isle; D'Urfé; & others.}

Certain Odors have a sensible influence
upon morals. Those persons must be
uncommonly turbulent, that are
not composed by a morning walk
in a flower garden in the month of
June. On the contrary, there are odors
which are said to have an unfriendly
influence upon the moral faculty. The
extraordinary wickedness of the people
who live in the neighbourhood of mount
Etna has been ascribed to their
being constantly exposed to the smell
of Sulphur which is emitted by that
mountain.



The long application of Odors of any kind to the nose is apt to bring on headache, cough, sickness & fatigue.
 ~~or~~ ^{bad Odor of the ~~or~~ Pigeon} The effects of the ^{earthly} oil in the kingdom of Aria in inducing fatigue are such, that the men who ~~are~~ employed in extracting it from the earth, demand higher wages than other ~~kind~~ of labourers. —

It is a happy circumstance that our smelling is connected with the constant involuntary act of inspiration. The nose by this means becomes a sentinel to the whole System, and thereby often delivers us from the consequences of inhaling ^{sickening} ~~deadly~~ or deadly odors.



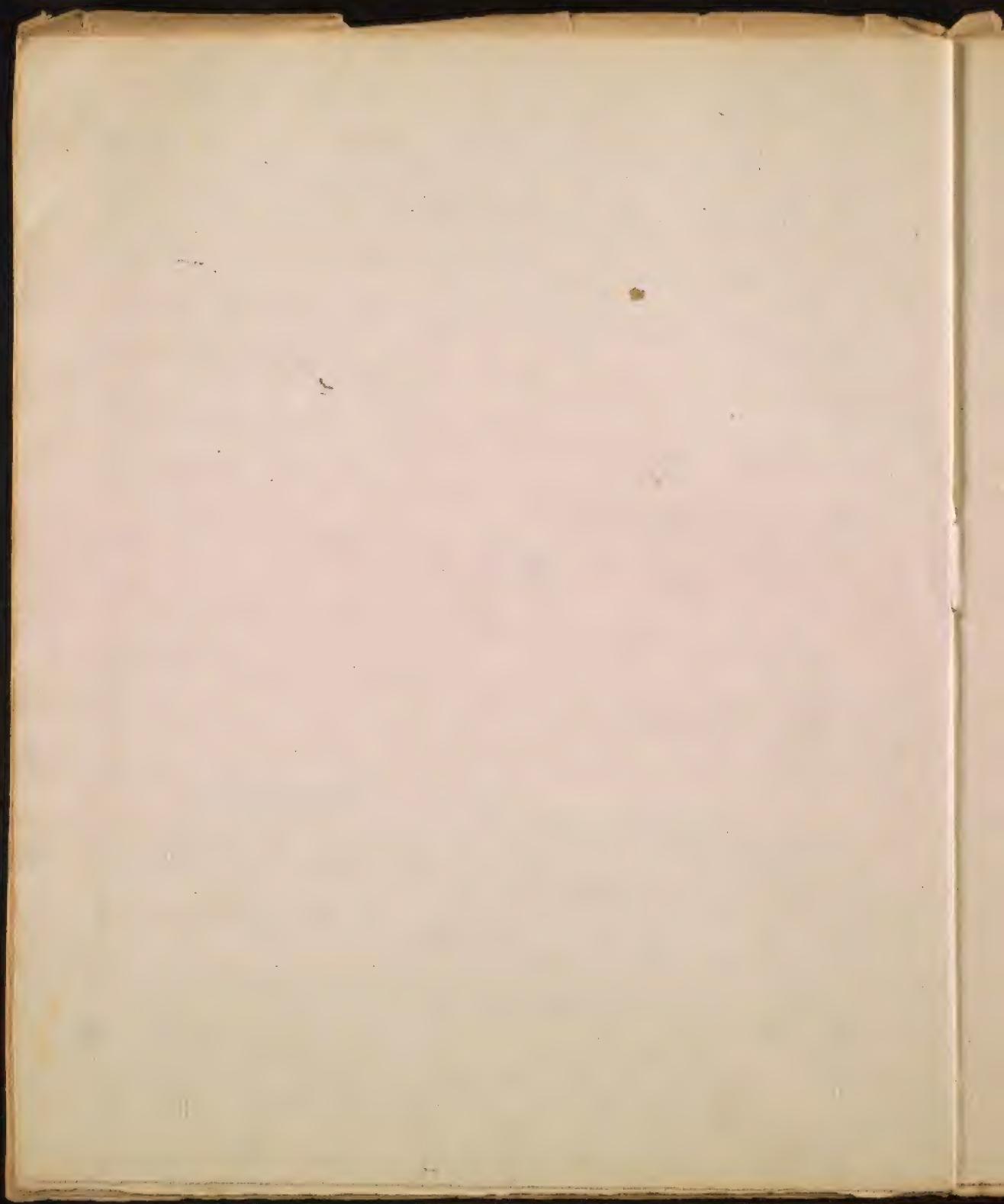
The books of Moses have been called by a great military Officer "the best orderly book in the world" among others proofs of the truth of this commandment, I shall mention a striking one, and that is the care which the Jews took to burn the fat, and the offals of the animals they offered in sacrifice, without their camp thereby to prevent their being annoyed by their offensive smell, or affected by malignant powers by their passing into a state of putrefaction above ground, & near to their encampments.

Persons who live in the Country have a more acute sense of smell than persons who live in towns. Viebuhler tells us, that

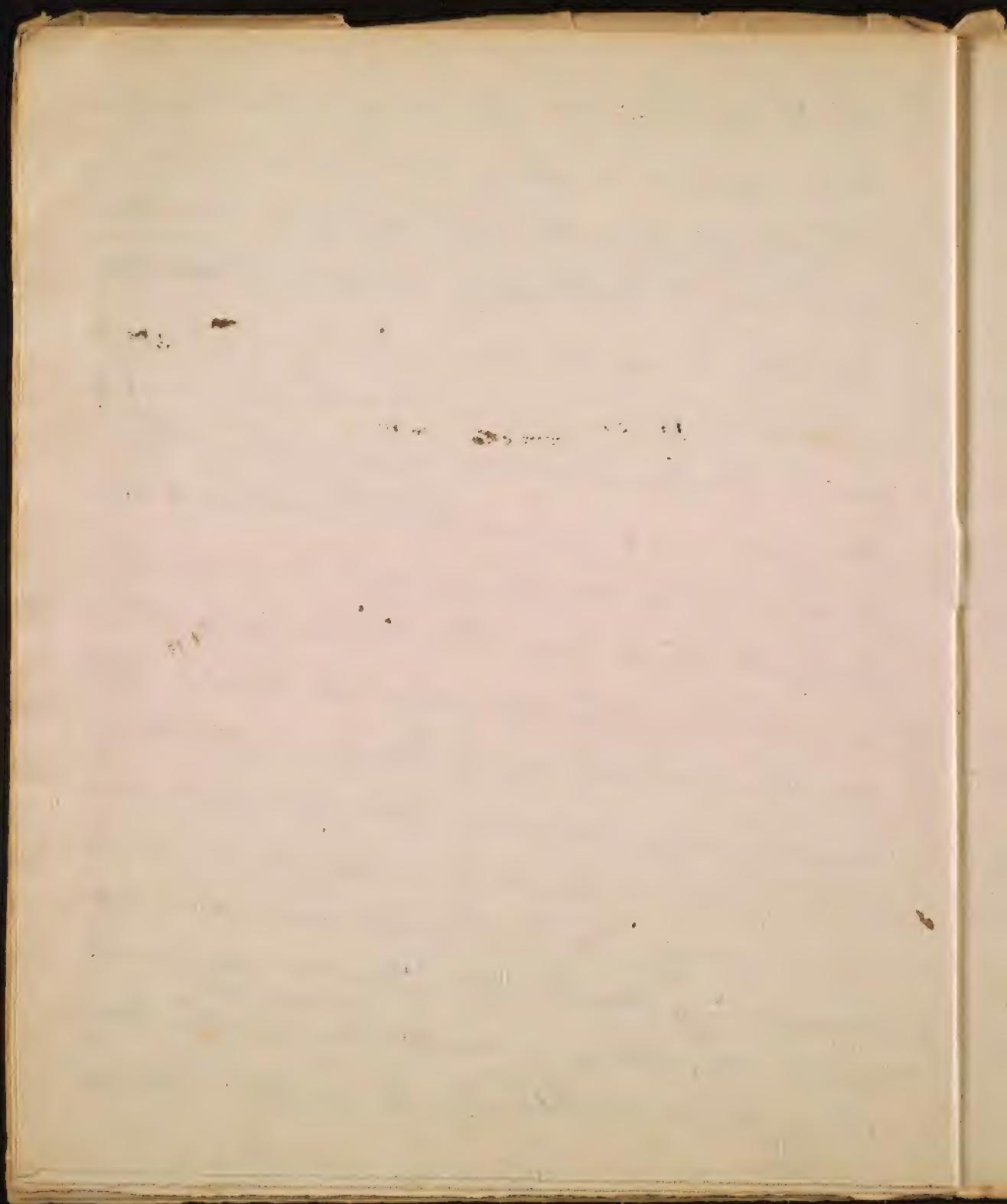


the Arabians popop it in so high degree
that they can find out their lambs when
they escape from them to the distance of
four or five miles. The Bramins cannot
bear to stand near an European soon
after he arrives from sea upon the acc^t.
of ~~the~~ his perspiration being so much
affected w^t by his animal diet during
his voyage, or ~~or~~ by his faeces in con-
sequence of this being absorbed by the
lymphatics and thus conveyed out of
the system ^{by the pores} instead of by the bowels ^{ch}
generally become constive from fasting.

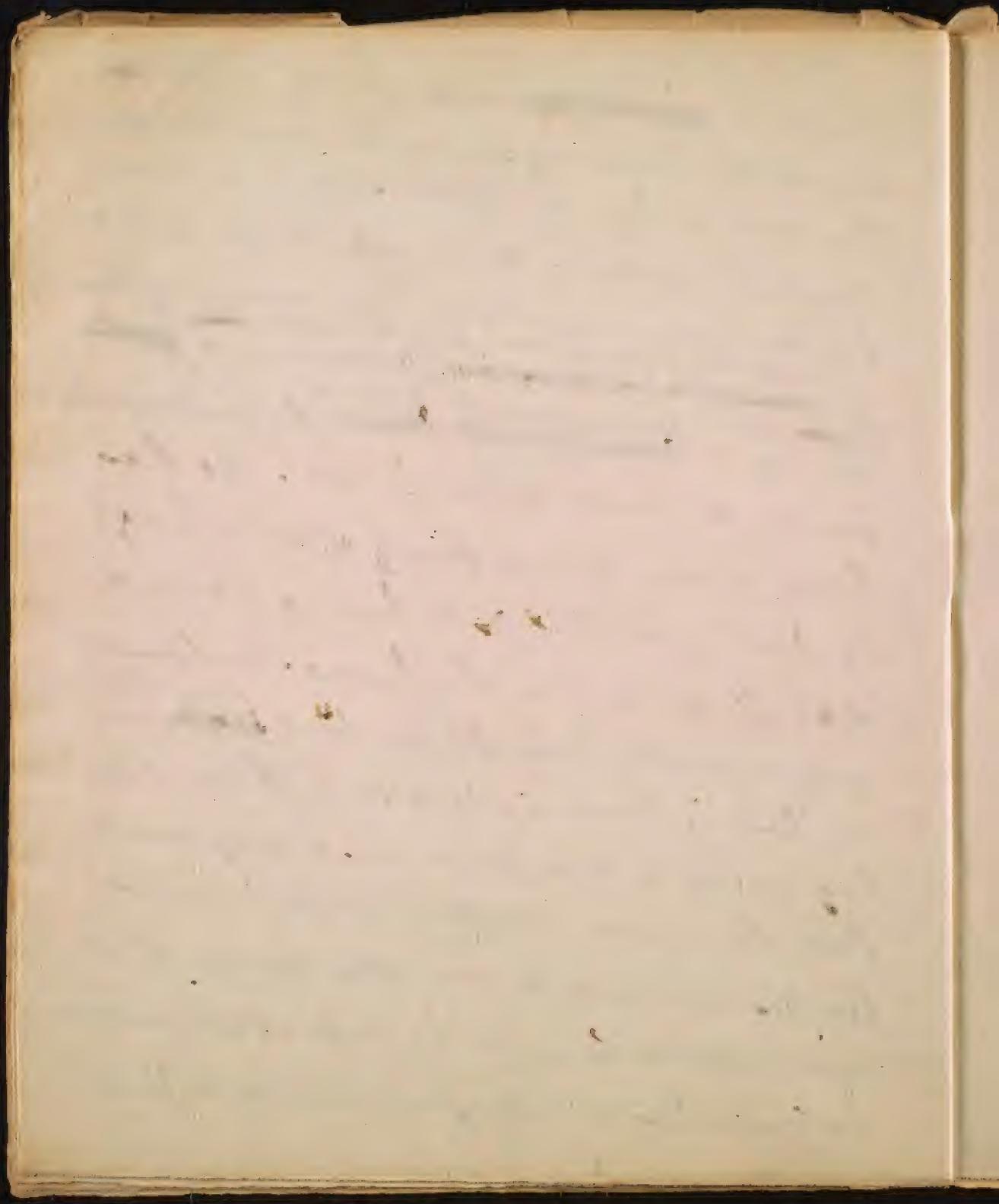
The sense of smelling in the Bramins
is rendered thus acute by their living
wholly upon vegetables. We read of persons
who could distinguish their acquaintances
from strangers ^{by the smell of their perspiration,} and of one man who



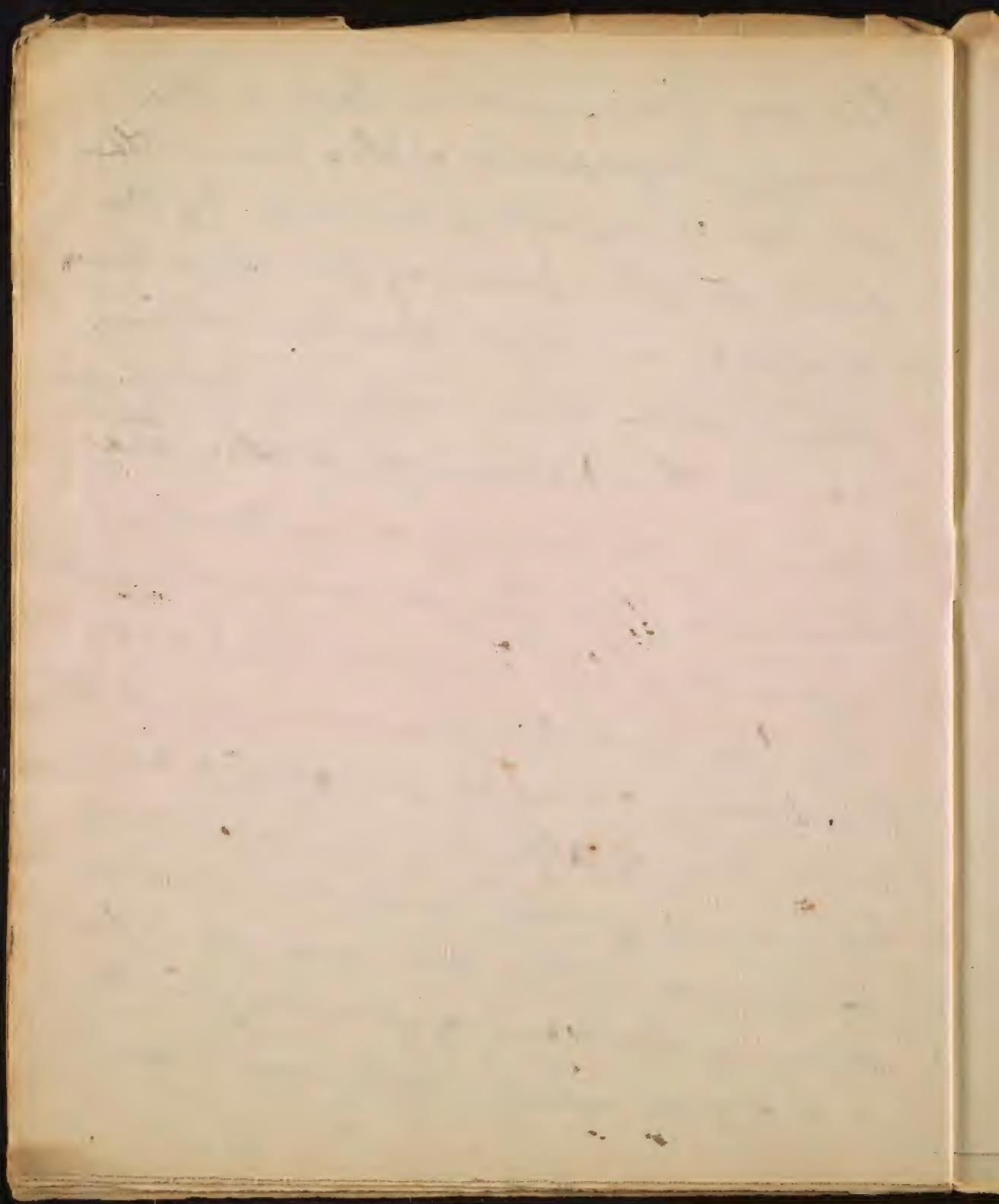
cou'd by the same means distinguish
his wife from any other woman.
Leclat goes further & mentions the case
of a monk in Prague who could ~~detect~~^{perceive}
by this sense the perspiration of a mar-
ried woman from that of a Virgin. A
French Gentleman who visited this city in
the year 1798 requested Dr Pascalis to con-
duct him to see some of his yellow fever
patients. Such was the acuteness of this
Gentleman's smell, that he could tell
at the door of every house he entered
whether any person had the fever in
it. There is a small number to this fever
which may be distinguished upon ap-
proaching the bed of a person confined
with it. It is perceptible ^{likewise} in the blood.
It is unmarkable the sense of smelling



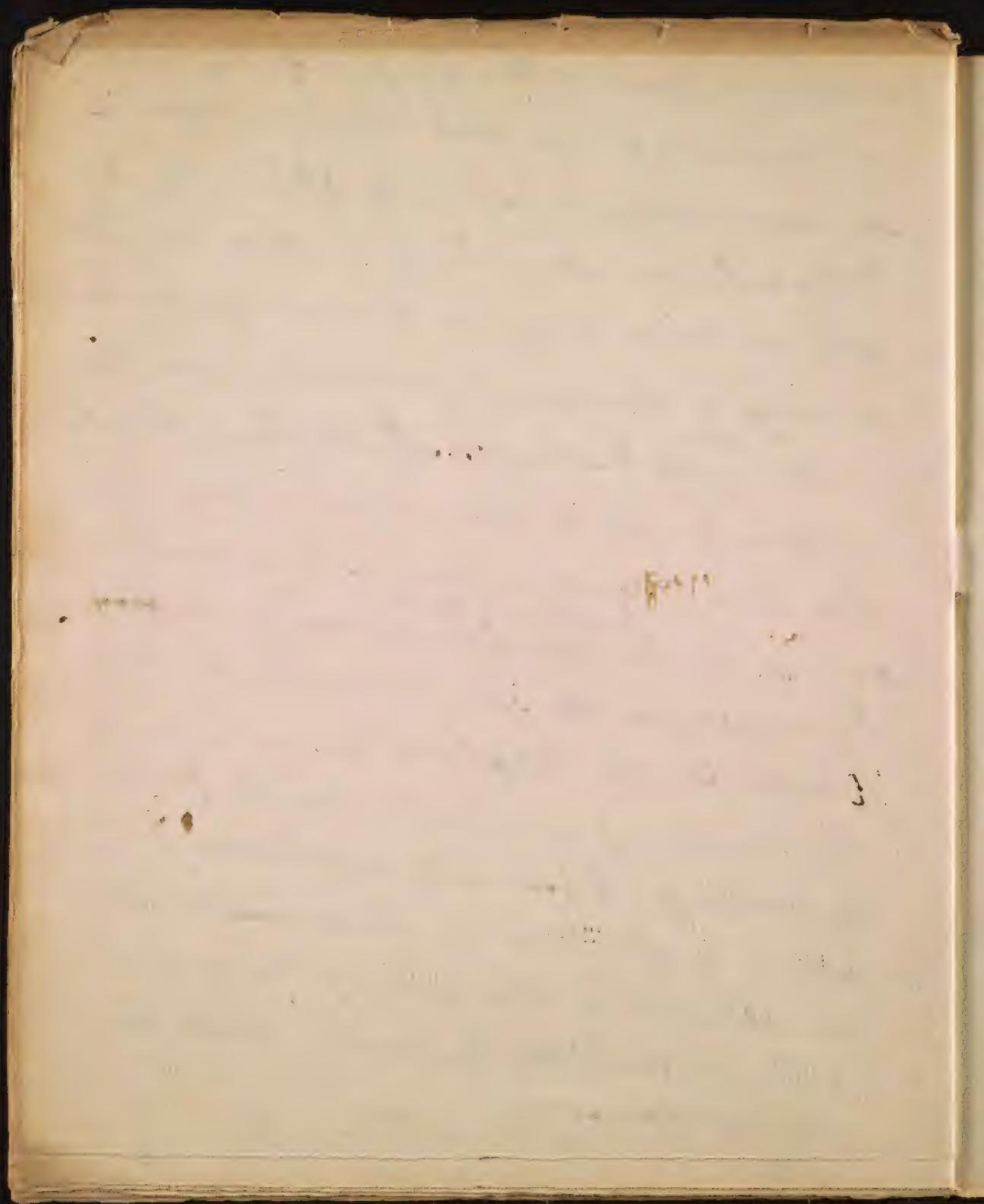
knowes ~~exquisitely~~ exquisitely acute ~~a~~
about the crises of several diseases whether
they end in life or death. It is more
acute in certain animals than in man
for the necessary purpose in many of them
defending themselves from their animal ~~or~~
~~of~~ ~~food~~ ~~spotted~~ ~~or~~ ~~obtaining~~ ~~to~~
they ~~is~~ ~~more~~ ~~prominent~~ ~~among~~ ~~the~~ ~~quadrupeds~~
The dog is ~~more~~ ~~prominent~~ ~~among~~ ~~the~~ ~~quadrupeds~~
for the acuteness of this sense. He has
 lately given a new proof of it in Eng^t
 by distinguishing a living from a
 dead sheep under the snow. He howled
 only over the dead sheep, but ~~scratched~~ ^{scratched}
 the living ones, as if to save them. The
 hog possesseth this sense in a very acute
 state likewise. To this he is indebted
 for discovering under the earth, those
 roots upon which he feeds. It is probable
 he owes his wonderful ability to find



his way home, when lost, to the
accuracy & perfection of this sense. The
deer often escapes his pursuer by the
accuracy of his sense of smelling - hence
over Indians when they hunt him,
never follow him with the wind. as
soon as they discover that they are
him by the recovery of his tracks,
they alter their course, and either get
upon his flank, or in his front.
The Elephant likewise owes much to
this sense. His whole proboscis is a
production of olfactory nerves, and it is
by means of this instrument which
he moves at his pleasure, that he
supplies the want of flexible joints,
and of eyes which cover and an-

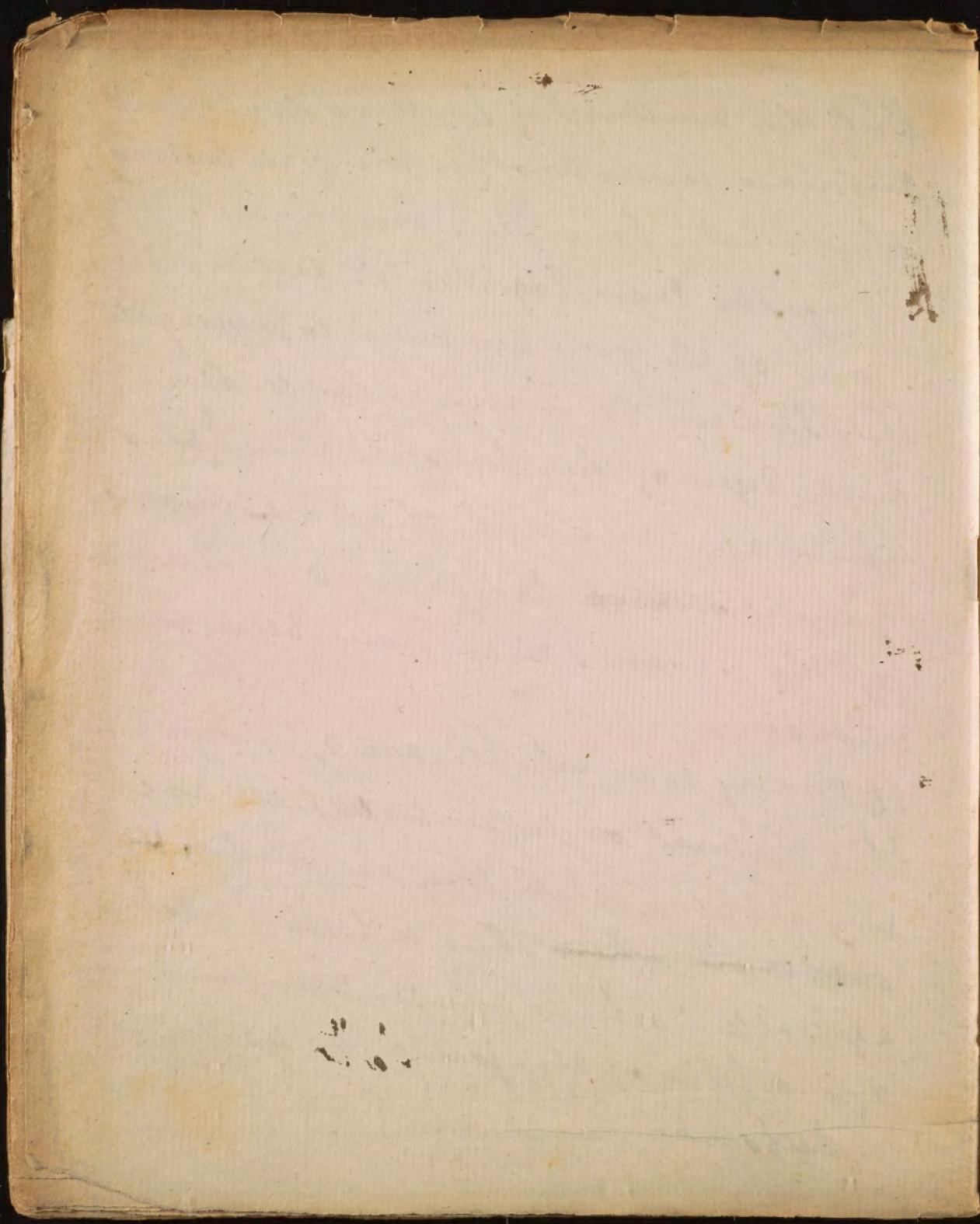


extensive view of the surface of the earth, in procuring his food. This proboscis is so exquisitely sensible of Odors, that Dr Boerhaave says he once saw an Elephant smell a pair of money from among a thousand pieces, which had nothing else to distinguish it, but the peculiar smell it derived from passing thro his masters hand. The sized extent of the ^{Snout and of the} *Opa Spongiosa* in the ~~head~~ bound, serves the same purpose as the proboscis in the Elephant in increasing the extent and extent of its sense of smelling. I formerly mentioned the extent of this sense in birds ~~at~~ that are allured to their food by the putrid effluvia emitted by it in a state of putrefaction.



But the antenna of smell in certain animals serves another purpose besides those which have been mentioned. It brings the sexes together at certain seasons of the year in order to propagate their species. It is remarkable that a acute degree of this sense is never wasted upon any animal that does not require it ~~at all~~ for some one or more of the purposes that have been mentioned.

10 Many Poisons which are offensive in their natural or concentrated state are very grateful when they are diluted. ~~thus~~ Thus a little musk is agreeable in hair powder & perfume, and a spice of Asafoetida, or Garlic in a beefsteak.



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The Carcase of a putrefying whale in the neighbourhood of Edin^r. The great extent of putrid odors is still more evinced by certain birds being allured many hundred miles by them when emitted from Carrion. ^{go below} I shall apply these facts when I come to treat of the nature and extent of those exhalations which produce bilious fevers. ^{none} of these fine particles of matter which thus affect the nose have ever been discovered by the microscope, or by any other instrument so as to be obvious to ~~the~~ ^{got 349} Sense of Vision.

¶ The odor of the Sweet-scented Shrub of Carolina was perceived 120 miles from the shore of that state by the crew of a ship that arrived from Philadelphia from Canton in 1811 and the odor from the flowers on the banks of the Rio Janiero was so intense as to destroy the barrel of tar in a ship 12 miles

